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Letter dated 31 January 2001 from the Chargé d'affaires a.i. of the Permanent Mission of the Solomon Islands to the United Nations and Chairman of the Pacific Islands Forum Countries represented at the United Nations addressed to the Secretary-General

In my capacity as Chairman of the Pacific Islands Forum Countries represented at the United Nations, for January 2001, I have the honour to transmit herewith a paper entitled "Energy and sustainable development: Pacific regional submission to the ninth session of the Commission on Sustainable Development", on behalf of the following members of the Pacific Islands Forum: Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, New Zealand, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu. The following Pacific Island territories have also endorsed this paper: American Samoa, French Polynesia, Guam, New Caledonia, Northern Marianas, Pitcairn Islands, Tokelau and Wallis and Futuna.

I should be grateful if you would have the present letter and its annex issued as a document of the Commission on Sustainable Development.

(*Signed*) Jeremiah **Manele**
Chargé d'affaires a.i.

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Annex to the letter dated 31 January 2001 from the Chargé d'affaires a.i. of the Permanent Mission of the Solomon Islands to the United Nations and Chairman of the Pacific Islands Forum Countries represented at the United Nations addressed to the Secretary-General

Energy and sustainable development

Pacific regional submission to the ninth session of the Commission on Sustainable Development

December 2000

This submission has been coordinated by the Committee of Regional Organisations of the Pacific (CROP) - Energy Working Group, comprising Pacific Islands Forum Secretariat (FORSEC), South Pacific Applied Geoscience Commission (SOPAC), Secretariat of the Pacific Community (SPC), South Pacific Regional Environmental Programme (SPREP) and the University of the South Pacific (USP) and observers from the United Nations Development Program (Suva) and the Pacific Power Association (PPA). These CROP organisations represent the following Pacific island countries: American Samoa, Cook Islands, Federated States of Micronesia, Fiji, French Polynesia, Guam, Kiribati, Marshall Islands, Nauru, New Caledonia, Niue, Northern Marianas, Palau, Papua New Guinea, Pitcairn Islands, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, and Wallis and Futuna. This submission representing a regional consensus position.

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ENERGY AND SUSTAINABLE DEVELOPMENT

Pacific Regional Submission to the 9th Session of the Commission on Sustainable Development (CSD9)

EXECUTIVE SUMMARY

The Pacific region acknowledges the vital role of energy in achieving sustained economic growth, especially for the least developed countries, and recognises the complexities and interdependencies inherent in addressing energy issues within the context of sustainable development. This executive summary in particular highlights the areas where the Pacific region differs from the rest of the globe.

Key issues

Pacific island countries face a unique and challenging situation with respect to energy for sustainable development:

- There is a vast difference between the individual country populations and most of the populations are isolated and in very small concentrations. Therefore markets are very thin, difficult to serve, and without economies of scale.
- 70% of people are without access to electricity.
- Most countries are completely without conventional energy resources.
- Existing mechanisms of international co-operation through regional agencies are working well to plan for a sustainable energy future.

Pacific Island countries comprise a wide range of ecosystems and habitats that are predominantly influenced by marine systems. While the Pacific Ocean occupies a vast area, those ecosystems and habitats are confined to small land masses and surrounding seas. Current priority environmental issues that require addressing are:

- Coastal erosion and degradation, including coral reef management.
- Waste management and land based sources of pollution.
- Extreme weather events and disasters.
- Increased urbanization.

Pacific island countries have special concerns arising from their situation that vary from those of larger countries:

- Environmental vulnerability through climate change, sea level rise, habitat loss and pollution resulting from the development and use of conventional energy sources is very high, particularly for small islands and low-lying atolls.
- Pacific island countries are particularly concerned with the magnitude and rapid growth of the emissions from developed countries and want those emissions reduced.
- Energy security is crucial considering their near-total reliance on petroleum imports, in particular for transport, combined with limited storage and high fuel prices.
- The development of renewable sources has been limited in part due to the difficulties of small markets in providing alternatives at reasonable cost.
- There is limited scope for market reforms considering the size and density of markets
- Cultural impacts are serious concerns, therefore, it is important that new technologies are considered to be appropriate.
- The region has limited human and institutional capacity to respond to these challenges and is dependent on foreign aid.

Recommendations arising from these concerns include:

- Analysis and policy recommendations in global fora should take into account the wide sub-regional variation in environmental, social and economic impacts.
- Regional priorities for sustainable development are energy efficiency, renewable energy, environmentally sound energy development and use, and human and institutional capacity building.
- The Pacific has taken a consistent stand against nuclear energy as a source of local energy or as an acceptable energy choice under the Clean Development Mechanism under the Kyoto protocol.
- There should be greater transfers of environmentally sound, efficient, and cost effective technologies.
- Proposals and recommendations at the regional level should utilise existing mechanisms for co-operation through the regional agencies, in order to involve governments and civil society as widely as possible in the planning process.

The Pacific shares many of the same concerns of other counties in the other regions. In the following specific categories, recommendations are listed only where they differ from the widely circulated papers considered at regional UN-system meetings.

A. Accessibility of Energy

The issues related to energy accessibility in the Pacific at the regional and national levels include the following:

- Regional arrangements are needed that could ensure greater reliability of energy supply. Special measures may be required to ensure that countries without any indigenous commercial energy resources can meet their basic requirements.
- Energy markets should take into consideration the absence of conventional energy resources, isolation, and high dependence on petroleum products within the region for energy generation.
- National policies and actions should be adopted to ensure that the basic energy requirements of low-income rural and urban dwellers are met.
- International investment decisions and assistance policies should consider the social grounds for development of the energy sector.

B. Rural Energy

The issues to be addressed with regard to rural energy include the following:

- Effective approaches are needed for the provision of affordable energy technologies to the 70% of population in rural areas.
- Renewable energy service companies (RESCO) should be promoted.
- Detailed information databases on available resources should be established through monitoring, assessment, and evaluation of existing systems and projects.

C. Financing the Energy Sector

The issues to be addressed with regard to finance include the following:

- Pacific island countries need to create a favourable climate for increased investment by the government, private sector and for donor support in energy and related areas.
- Flexible financing mechanisms are needed that include the private sector in equipment supply, project implementation, management and maintenance.
- Prices should be reformed based on the true cost of energy where possible, including environmental and social costs throughout the life cycle of energy services.
- Development finance institutions and commercial banks should be engaged to providing flexible loans for small-scale projects.

D. Energy Efficiency

The issues to be addressed with regard to efficiency include the following:

- National policies, programmes and projects to enhance energy efficiency should be developed and financed using appropriate technologies.
- Supply side management mechanisms should be developed to improve efficiency in production, transmission and distribution of electricity
- Demand side management should be promoted through education, communication, and better technologies.
- Information and education programmes should be conducted in all sectors, including appliance rating and labelling.

E. Advanced Fossil and Nuclear Fuel Technologies

The issues to be addressed with regard to advance technologies for fossil fuels and nuclear energy include the following:

- Advanced fossil fuel technologies are not suitable for adoption in the Pacific region. Equivalent resources should be put into the development of renewable and appropriate energy systems for developing countries.
- Nuclear energy sources are neither appropriate or an acceptable energy choice for use in the region, or for designation under the Clean Development Mechanism under the Kyoto protocol.
- International development assistance should promote access to relevant technologies through concessional financing, partnerships for institutional strengthening, capacity-building, and knowledge transfer.

F. Renewable Energy

The region has significant potential for the use of renewable energy that has not yet been fully realised, but is an appropriate path to greater energy security and environmental integrity. The region is well placed to exploit wind, solar, wave, geothermal and hydropower. The issues to be addressed with regard to renewable energy include the following:

- Effective approaches are needed for the removal of barriers to the widespread use of renewable energy.
- Transfer of environmentally sound, efficient and cost effective renewable energy technologies is required.
- Appropriate approaches to the implementation of renewable energy demonstration projects and programmes, resource assessments, education and training are required.
- Policy options and strategies for the wider scale application of renewable energy need to recognise the diversity and scale of national circumstances.
- Establishment of national, regional and international networks are needed to foster support and co-operation and assist in strengthening local capacity and institutions.

G. Energy-related Issues in Transportation

The transportation sector in the region is one of the major consumers of fossil fuels for energy. Emissions from this sector have serious implications for health, air quality and the environment. The issues related to the transportation sector are:

- Energy efficiency within each transportation mode needs to be raised.
- Fuel quality needs to be improved and monitored.
- Discourage the import of fuel inefficient vehicles so as to ensure that fuel efficient and appropriately sized vehicles are imported.

- Plan and design transportation systems that are efficient, and consider the use of alternative fuels and electric technologies.
- Institute and enforce adequate emission control measures with effective enforcement procedures.
- Promote education programmes that encourage efficient use of transport systems

H. International Co-operation

The major issues in international co-operation are:

- Increase international co-operation to build national capacity, which encompasses creation of public awareness, education and training, and research and development.
- Ensure that the disposal of by-products and residuals such as waste oil, waste chemicals, PCBs, and batteries are adequately addressed in international policies.
- Increase commitments for the development, transfer and application of relevant technology to enable the Pacific to increase its use of renewable energy sources and cleaner fossil fuels.
- Establish energy baselines and develop effective and appropriate systems for the collection of energy and resource data. The collection of solar, wind, geothermal, wave, and tidal data will assist in establishing the resource potential and utilization opportunities for these resources.
- National human capacity and appropriate institutional arrangements, particularly in management, finance and maintenance, should be included as an integral component of programme implementation.
- Regional organisations should continue to play a lead role in providing assistance to the public sector at the regional level to implement policies and regulations, catalysing participatory approaches, and facilitating institutional networks through demonstration projects.
- International and regional organisations should provide assistance in establishing and quantifying the environmental and social impacts of energy use.
- Encourage efforts to achieve greater commitments of development assistance (including the ODA target set at the United Nations Conference on Environment and Development) to be used by recipient countries to address energy and related problems.

ENERGY AND SUSTAINABLE DEVELOPMENT

Pacific Regional Submission to the 9th Session of the Commission on Sustainable Development (CSD9)

PREAMBLE

1. The sectoral focus of CSD9 is "Atmosphere/Energy" and the economic theme is "Energy/Transport". The region acknowledges the vital role of energy in achieving sustained economic growth, especially for the least developed countries, and recognises the complexities and interdependencies inherent in addressing energy issues within the context of sustainable development.

2. This Pacific regional submission to CSD9 is on behalf of the independent Pacific island countries that are members of the Pacific Islands Forum and member States and Territories that are members of other regional organisations in particular those involved in energy sector issues.

3. The submission has been coordinated by the Committee of Regional Organisations of the Pacific (CROP) - Energy Working Group, comprising Pacific Islands Forum, South Pacific Applied Geoscience Commission (SOPAC), Secretariat of the Pacific Communities (SPC), South Pacific Regional Environmental Programme (SPREP) and the University of the South Pacific (USP). These organisations represent (22) Pacific island countries whose governments and energy units along with other relevant organisations in the region have reviewed and adopted the recommendations of this submission. Contributions were also received from United Nations Development Programme (Suva) and the Pacific Power Association (PPA). All of these island countries are considered as small-island developing states (SIDS) and are also represented through the Alliance of Small Islands States (AOSIS).

4. This submission has been prepared to take into account the following:
   - A Special Session of the United Nations General Assembly was held in September 1999 to review the implementation of the Barbados Programme of Action for SIDS. The Pacific regional submission to CSD-7 essentially focused on this review, and much of that review was relevant to the CSD-8 where the sectoral theme was of integrated planning and management of land resources;
   - The 1992 Rio Earth Summit declaration and the 22nd Special Session of the United Nations General Assembly endorsed the linkages between energy, climate and sustainable development. The quest for enhancing energy efficiency and promoting renewable energy will achieve the two goals of reducing greenhouse gas emissions and the dependency of imported fossil fuels.
   - Although the focus of CSD9 has been global in nature, it is also important to appreciate national and regional situations, identifying where possible the variation in the needs and priorities within different Pacific island countries. Regional initiatives continue to address the many energy sector related issues that concern the Pacific island countries, such as development of National Energy Policies and the Pacific Islands Climate Change Assistance Programme (PICCAP) assisting in the preparation of National Communications and Greenhouse Gas Inventories.
   - In addition to the existing regional organisations, the Pacific island countries pursue sustainable energy development in collaboration with the Caribbean and Indian Ocean under the umbrella of the Alliance of Small Islands States (AOSIS).

I. INTRODUCTION

5. The Pacific island countries continue to share a common aspiration for economic development and improved living standards while at the same time remain strongly committed to conserving the natural and cultural heritage upon which their future depends. This submission to the Ninth Session of the Commission on Sustainable Development aims to build on agreements already reached by Pacific island countries and the international community concerning the sustainable development of Small Island Developing States. It provides a measure of progress towards sustainable development in this region and identifies where special attention is required to further its implementation.

6. The Pacific island countries can generally be considered in the context of small populations – a total of 6 million, on often tiny islands – more than 1100, and spread over a huge area of ocean – some 30 million square kilometres. This providing a setting that is very much unique on the global scene. This context has for generations directly impacted the lives and well being of all Pacific peoples and is deeply enshrined in traditional and cultural values and practices. Over the past one hundred years, with increased access to the "outside world" and the onset of globalisation, there has been a big change in the aspirations for a "better quality of life" for Pacific people. Key problems include contamination from waste, coastal degradation, urbanisation, and the continuing decline in human and institutional capacity health.

7. Coastal communities dominate in the region. Population is increasing, and in some places as a result of "urban drift" the rate of increase is alarming. These changes are leading to stress on the island system with an increased demand for resources. Impacts from extreme weather events and disasters have had profound consequences.

8. Further stress on the island system is occurring as countries develop. Their reliance on fossil fuels has increased, in particular for producing electricity. Another high energy-consuming sector is transport, including sea transport. It is therefore important to acknowledge that in providing access to energy sources, in particular electricity, there is significant opportunity to utilise renewable energy sources. Although renewable energy technologies such as solar, hydropower, biomass and to a lesser extent wind have already been utilised in a number of the Pacific island countries to improve, communication, health, education and some small cottage industry, there remain significant opportunities and potential to further develop these renewable energy resources. However, for the Pacific island countries there are still a number of constraints and barriers to the exploitation and integration of these renewable energy technologies into the urban and rural sectors.

9. The region acknowledges that the objectives envisaged for sustainable energy futures should reflect the need for adequate energy supplies and increasing energy consumption in developing countries. The increase in the level of energy services will have a beneficial impact on poverty alleviation and social and gender equity by increasing employment opportunities and improving transportation, health and education. While countries are individually making advances towards sustainable energy utilisation, and all parties can benefit from progress made in other countries, there remains a significant amount of ground to be covered.

10. The Pacific island countries remain heavily dependent on fossil fuel based systems of energy generation that are frequently environmentally and economically unsustainable and not equitably available to remote populations. This dependency makes them vulnerable to increased costs and uncertain supplies which slows the sustainable development of Pacific island countries, particularly in rural areas.

11. In the broader context of energy with in the region, it is important that future opportunities be enhanced not only through regional initiatives but also by aligning where applicable and appropriate with the wider global energy agendas. Not withstanding the insignificant emissions of greenhouse gasses from the small Pacific island countries, the potential for actions leading to use of non-carbon energy sources will ensure a more sustainable energy path for the future. Most Pacific island countries have already embarked on projects and activities in the context of the commitments under the United Nation Framework Convention on Climate Change (UNFCCC), which have led to significant abatement in the levels of greenhouse gas emissions.

12. It is imperative that the Pacific Island countries are provided financial and technical resources to assist in their visions for the exploitation and use of new and alternative forms of energy. International and regional cooperation are important to ensure the promotion of energy conservation, improvement of energy efficiency, adoption of renewable energy technologies, and the development and dissemination of innovative energy-related technologies. The CSD9 is therefore requested to seek support from the international community to assist Pacific island countries in implementing the recommendations in this submission.

II. BACKGROUND

13. In recent years the need for and importance of energy in the region has increased significantly in particular in relation to the global agenda and associated issues such as changing climate and, sea level rise. The essential role of energy for economic and social development and the increasing need to reduce negative environmental impacts has been noted. Furthermore, the need for sustainable patterns of production, distribution and utilisation of energy are of critical importance to the above-mentioned objectives, and are among the issues facing the challenge of energy for sustainable development.

14. Energy consumption is often regarded as an important indicator of economic development of a nation. For households, access to different types of energy sources is a key indicator of the standard of living: changes in these proportions would, consequently, provide evidence of the development path. The commercial/industrial sector is fuelled by energy. The Pacific island countries energy use in these sectors is dominated by imported fossil fuels, mostly petroleum. Indeed, the region can be regarded as among the world's most dependent on fossil fuels for their economic development.

15. In terms of energy imports, Pacific island country energy imports account for 15-25% of total imports and over 40% of the gross domestic commodity exports. A Pacific Regional Energy Assessment (PREA) (1992) report showed the tremendous impact of petroleum imports on the economy. The ratio of petroleum imports to total exports is very large for most Pacific island countries, between 40 - 80%, and alarmingly so for some countries where the figures are as high as 500%. This constitutes a dangerous dependency situation, for in case of a major disruption in the fuel supply due to global shortages, rising prices, conflicts or other causes, the consequences would be dramatic.

16. Most of the imported energy is used either for transportation or for the generation of electricity. This is compounded by the fact that the fuel prices in the region tend to be 20-30% higher than world market prices. The recent increase in oil prices have had a major effect on the Pacific island country economies.

17. Approximately 50% of the total energy used in the Pacific island countries is from indigenous, local sources. These consist mainly of biomass (fuelwood, bagasse, coconut husk and shell) hydro and small amounts of solar and wind energy.

18. On average individual Pacific islanders are responsible for producing approximately one quarter of the per capita CO_2 emissions attributable to the average person world wide. This means that that Pacific island countries account for some 0.03% of the global emissions of CO_2 from fuel combustion despite having around 0.12% of the world's population. This can be compared to the 29 OECD countries, which account for just over 50% of the total global emissions from fuel combustion, with approximately 20% of the world's population.

19. Transportation accounts for over half the petroleum use in most Pacific island countries. This is equivalent to about 680000 tonnes of petroleum per annum. A nominal increase of 5% in vehicle efficiency would reduce GHG emissions by approximately 30,000 tonnes of carbon or over 108,000 tonnes of CO_2. This kind of analysis shows the potential for reducing carbon emissions from the transportation sector. Combined with other strategies, the resulting benefits on the environment and the economy are likely to be significant.

III. KEY ISSUES

20. In comparison to other regions on the globe the primary source of electricity for the Pacific region is predominantly from fossil fuels. Although the Pacific's consumption is insignificant, as are its associated greenhouse gas emissions, the region is particularly vulnerable to climate change and sea-level rise resulting from the emissions of larger developed countries. This is particularly important to the very low-lying coral atoll countries within the region with limited land area.

21. Although energy is linked to major global issues such as economic development, poverty alleviation and social development, there are a number of other related issues such as gender concerns, transportation, health, environmental quality, and energy supply security. Therefore, even though the importance of energy for sustainable development is well recognised by the international community, there is still a lack of understanding of the full range of challenges in the region that requires immediate attention.

22. However, it should be noted that there is a wealth of experience in the region in urban and rural energy supply systems and programmes. Most of the larger projects and a significant number of smaller renewable energy and alternative technology projects have been reported on and these experiences continue to be used in the region to improve current and proposed projects and programmes. Notwithstanding this source of information, there remain other important parameters that preclude the Pacific island countries from addressing all the demands in the energy sector as they strive to achieve a sustainable position.

23. The magnitude and scale of the energy problem facing the region today in relation to sustainable human development and environmental objectives can be gauged by the fact that within the Pacific island countries it is estimated that approximately 70% of people do not have access to electricity. Many of these people live on remote islands or in isolated inland rural areas. Significant disparities exist between countries in their level of development and energy consumption. In the same context the linking of "access to energy" and "transportation services" is a highly important issue for Pacific island countries due to their small and dispersed nature over thousands of kilometres of ocean.

24. The long-term sustainability of energy production and distribution relies on the ability of the region to develop appropriate and affordable systems. Traditionally, commercially proven energy generation systems using fossil fuels, and to a lesser extent hydropower, have been adopted by the regions power utilities. As new and renewable energy sources such as wind and solar photovoltaic systems become financially and economically viable they have the potential to be adopted where appropriate. The adoption of renewable energy sources has addressed some of the health and environmental consequences of energy production in an attempt to pursue a sustainable energy future.

25. In considering the sectoral theme of "Atmosphere/Energy" and the economic theme of "Energy/Transport" the following key issues have been identified and are elaborated in the following sections of this submission:

(a) Accessibility to energy needs to be reliable, at affordable costs for both urban and rural consumers, and thereby contribute to security of energy supply.

(b) Improvements in rural energy require the development of financing mechanisms, reduced systems costs, and improved local capacity in management, finance, and maintenance.

(c) Improved finance of energy services requires pricing reforms based on true costs with consideration for environmental and social costs electricity tariffs that provide a basic level of affordable energy to all people, and increased resources on flexible terms.

(d) Efficiency needs to be improved in electricity production, conversion, distribution and utilisation.

(e) Advanced fossil fuel technologies are not yet appropriate for the Pacific island countries, and should be foregone in favour of more appropriate technologies. Nuclear technologies are not acceptable as an option under the clean development mechanism.

(f) Renewable energy programmes need to accelerate development of components and enhance transfers of appropriate technology to achieve higher levels of efficiency and lower costs.

(g) The transportation sector should improve energy efficiency, thereby reducing environmental and health impacts through the reduction of emissions.

(h) The priorities for international cooperation are for human and institutional capacity building, mobilisation of private and public investment capital, and transfer of appropriate energy technologies.

(i) Progress on these key issues requires effective and appropriate systems for the collection of energy supply, demand, and resource data. The collection of solar, wind, geothermal, wave, and tidal data will identify utilisation opportunities for these resources.

(j) With regard to the environmental impacts of energy use, the Pacific island countries are particularly concerned with the magnitude and rapid growth of emissions from developed countries and believe they should take the lead in reducing emissions.

A. Accessibility of Energy

Situation and Challenges

26. Accessibility of energy varies widely within the Pacific region. It is estimated that in the Pacific island countries approximately 70% of the people do not have access to modern energy services, with many of these people living on remote islands or in isolated inland rural areas. This is a greatly different picture to the global situation where approximately 30% are without access to modern energy services. Meeting the basic energy requirements and sustainable socio-economic development needs of people with subsistence incomes remains a top priority.

27. Aside from a relatively limited amount of energy that is generated from hydropower in the region the balance is provided from diesel fuel. There is still a high demand in the

region for access to energy resources and energy services. As a number of these resources are unevenly distributed there remains the ongoing need to ensure the efficient use of these resources, to ensure the resources are not over exploited and are utilised in an efficient manner. Therefore there is a need to ensure the availability of energy services in a reliable way and at affordable costs within both national and regional contexts, thereby contributing to security of energy supplies.

28. As an over arching requirement there is also the need for appropriate energy policies (rural and national) that are implemented in a consistent manner. In particular these should be founded on sound policy objectives, consistently observed and maintained so as to reduce the chance of inconsistencies developing which will lead to instability, insecurity, and lack of general confidence that is required for investors to make serious long term investments in the region.

Strategies and Recommendations

29. In considering energy accessibility at the regional and national levels the following main strategies and recommendations have been identified:

(a) Provide reliable energy markets that can generate a profitable income for producers.
(b) Utilise the introduction of electricity so as to assist in generating economic activities.
(c) Establish greater reliability of the energy supply at an affordable cost.
(d) Utilise renewable natural resources to meet energy demands where economically and financially feasible so as to reduce the high dependence on imported petroleum products used for electricity generation.
(e) Adopt national policies, strategies and actions that ensure the basic energy requirements of low-income rural and urban dwellers are met with modern energy services at an affordable cost.
(f) Seek increased official development assistance for international and regional funding cooperation in the development of national sustainable energy strategies.

B. Rural Energy

Situation and Challenges

30. Issues confronting rural commercial energy are wide ranging. The provision of energy services to rural areas remains inadequate due to the often dispersed and isolated nature of the population. Access to these rural areas or isolated islands can be difficult due to the lack of adequate infrastructure or services and the ability to contribute towards the payment for these services is hindered by low-income levels. Although, in a number of countries, there has been an integrated approach to rural development (energy, health education, agriculture and environment) the successes and penetration is still relatively limited.

31. A significant amount of assistance has been provided in the region on the development of national energy policy statements and also rural electrification policy statements and guidelines. The objective of developing these statements has been to assist with the overall integration of energy into rural development strategies; improving the quality and quantity of information on the availability and use of energy in rural areas both for use by policy makers, suppliers and the consumers. Unfortunately, frequently there has been inconsistency and a lack of commitment given to the adoption and implementation of energy policies and operational guidelines.

Strategies and Recommendations

32. In considering rural energy at the regional and national levels the following main strategies and recommendations have been identified:

(a) Establish opportunities for better access to renewable energy technologies (such as stand-alone solar systems and hybrid) in rural areas through the removal of barriers and obstacles to sustainable rural energy sector development.
(b) Ensure that appropriate technologies are adopted to provide the desired level of service, that projects are environmentally sound and opportunities are taken to use clean and efficient technologies so as to reduce the vulnerability to the environment and impact of climate change and sea-level rise.
(c) Establish policies and mechanisms relating to funding and financing for projects and programmes, including fee collection.
(d) Develop human and institutional capacity in management, finance and maintenance.
(e) Provide opportunities and encourage the participation of rural energy service companies, the private sector, local companies and manufacturers to supply equipment, for project implementation, management and maintenance.
(f) The need to capitalise on opportunities to establish manufacturing and process plants in developing countries where applicable.
(g) Ensuring that the environment and livelihood of rural communities are not disadvantaged through the implementation of rural energy systems.
(h) Establish detailed information databases on resources available and the assessment of energy requirements, existing systems and projects.
(i) Encourage improvement in the efficiency of renewable energy components and systems whilst ensuring that the prices are also reduced.

C. Financing the Energy Sector

Situation and Challenges

33. The Pacific region continues to face problems in securing funding for development of the energy sector, in particular for the rural communities. Within individual countries there is the lack of commitment to longer-term investment and support for programmes, which therefore restricts development. In general the energy sector within the region is seen as one of the sectors that continues to drain national economies considering that the greater percentage of import costs are for fossil fuels on which the energy sector is reliant. However, it provides great opportunity for future investment for development.

34. Considering the ongoing requirements for capital and the need for appropriately skilled human resources (management and technical), there still remains a major challenge facing the region as a whole and the countries individually as how to mobilise the investments necessary for sustainable energy systems. Problems relating to the financial viability of public electric utilities have affected timely improvements in efficiency in the generation, transmission and distribution of electricity, as well as in the management of demand. It has also been found that regional energy programmes in the past decade have heavily focussed on renewable energy and therefore this imbalance sees the main utility generation and its associated needs being neglected.

35. In a number of cases some of the long-term donor funding provided to the region has been found not to establish a true position of sustainability, but experience and lessons learnt from these earlier projects in the region has shown that this need not be the case. Projects and programmes in the region have been sustainably developed through

continual technical assistance, but this assistance needs to be ongoing and consistently applied on the order of 10 years.

Strategies and Recommendations

36. In considering financing the energy sector at the regional and national levels the following main strategies and recommendations have been identified:

(a) Encourage the structuring of electricity tariffs so as to provide a basic level of affordable energy.
(b) Encourage developers to invest through incentives and a secure market with the appropriate scale economies and opportunities for the future.
(c) Provide institutional strengthening and assist with developing and implementing legislative reforms.
(d) Encourage and establish the environment, and provide opportunities for corporatisation and privatisation.
(e) Assist in developing pricing mechanisms and reforms based on true costs with consideration for environmental and social costs throughout the life cycle of the energy services.
(f) Introduce customs duties, tax concessions and market transformation initiatives to encourage efficiency throughout the energy sector.
(g) Use government procurement programmes to achieve scale economies.
(h) Engage development finance institutions and commercial banks in providing loans for small-scale projects, and promote innovative financing arrangements, especially for low-income inhabitants.
(i) Encourage the private sector and local communities to provide energy services, particularly in rural areas, and contribute to achieving the intended goals through capacity building at the corporate and community levels.

D. Energy Efficiency

Situation and Challenges

37. In the Pacific the greater proportions of energy are consumed in the production and distribution of electricity followed by transport and then to a lesser degree, industry and agriculture. Improving the efficiency of energy production and distribution and utilisation will lead to a reduction of the energy consumption per unit product or activity, but the Pacific has been relatively poor at adopting energy efficiency practices and designs. This stems from lack of policy, lack of information and education, and the fact that there has been a reticence of consumers and energy suppliers (power utilities) to make investment up front to achieve future savings. It has been well demonstrated and recognised that making energy systems more efficient contributes to reducing costs, (thereby improving access to energy), reducing imported fossil fuels, reducing demand, improving local air quality and the reduction of greenhouse gases.

38. The power utilities have for some time suffered from a number of deficiencies. Effectively there has been a lack of human resources skilled in the area of power system analysis, design, and effective operating and maintenance procedures that limited the ability of the utility to address energy efficiencies particularly in the power system. In addition the equipment used in the power system have contributed to the inefficiency in power production and distribution as a result of inadequacies in procurement specification.

39. Many technological opportunities exist for improving energy efficiency in residential and commercial buildings, industry, transportation, agriculture and forestry. While numerous technologies to improve energy efficiency and manage energy demand more effectively

are readily available, new developments can enhance the potential of this option further. A major part of industrial energy is utilised by the light-manufacturing industries. Although the scale within the region is relatively small from a economic basis there does exist opportunities for the improvement and more efficient use of materials, including the recycling of materials and management of waste, thus assisting in reducing energy demand and greenhouse gas and other polluting emissions. One of the overarching factors limiting the penetration and development of these opportunities has been the lack of emphasis placed on education and information transfer.

Strategies and Recommendations

40. In the consideration of policies and measures to achieve wider gains in energy efficiency, the issues of main importance can be classified into the following main categories:

(a) Constraints and barriers that need to be addressed and the measures required in overcoming them;

(b) Improving the efficiency of production, transmission and distribution of energy and materials; and

(c) Energy efficiency improvement in industry, public, residential and commercial buildings and agricultural sectors.

41. In considering energy efficiency by addressing the constraints and barriers, the following main strategies and recommendations have been identified:

(a) Identify clearly the constraints and barriers to take full advantage of energy efficiency measures, particularly in the production and distribution of energy, and the utilisation of energy in industrial, commercial and domestic sectors.

(b) Address the lack of skilled human resources, develop clear appropriate policies, technology choices, taxes, duties, subsidies and rebate incentives. The resolution of these will contribute to energy efficiency, to reduction in energy demand and greenhouse gas and other polluting emissions.

42. In considering energy efficiency associated with the production and distribution of energy, the following main strategies and recommendations have been identified:

(a) Identify and adopt where economically and financially viable more efficient and power production and distribution technologies, and facilitate their transfer to other less developed countries in the region where appropriate.

(b) Carry out a power system losses assessment in the power utilities in the region, and implement a loss reduction programme, and develop appropriate specifications for the procurement of power supply equipment that will not contribute to energy inefficiencies.

(c) Carry out a human resource development needs assessment of the power utilities, and implement an institutional strengthening programme in those areas that will increase the ability of the power utility to improve energy efficiency.

43. In considering energy efficiency associated with the utilisation of energy, the following main strategies and recommendations have been identified:

(a) Create appropriate energy policies, standards and incentives that act as drivers for the conservation of energy and the acquisition of energy efficient consumer appliances.

(b) Establish energy audit mechanisms and monitoring systems.

(c) Encourage the creation energy service companies.

(d) Support research, development and demonstration.

(e) Disseminate technology options for improving end-use energy efficiency in the residential and commercial buildings sector include wider diffusion of technologies, such as more efficient equipment and appliances; efficient heating and air-conditioning systems; and more efficient building envelope designs. The introduction and adoption of regulatory mechanisms relating to the importation of energy efficient appliances and

equipment through star rating programmes and the introduction of minimum energy performance standards (MEPS) for equipment and appliances will assist in meeting these requirements.

(f) Consider institutional mechanisms that are required for regulatory and legal frameworks for implementing policies on incentives; energy efficiency standards and labelling of equipment; and inviting the private sector and communities to contribute to achieving the intended goals.

E. Advanced Fossil and Nuclear Fuel Technologies

Situation and Challenges

44. Advanced fossil fuel technologies have matured in some of the industrialised countries however, the greater majority of these are still not suitable for adoption in the smaller developing countries. It is recognised that if equivalent resources were put into the development of renewable and appropriate energy systems for developing countries that this would undoubtedly lead to the reduction of environmental impacts by way of efficiency improvements and reduced pollutant emissions. The emissions from fossil fuel combustion themselves have national, regional and global impacts. As the economies of developing countries expand in association with higher levels of consumption of energy, the resulting increase of emissions could be contained through more appropriate technology.

45. While addressing these issues the region is very clear on it's nuclear free policy. Nuclear energy sources are not considered appropriate nor acceptable for use in the region regardless of the individual claims that the utilisation of these types of advanced technologies are characterised by very low pollutant emissions and reduced costs in meeting environmental objectives.

Strategies and Recommendations

46. In considering advanced fossil and nuclear fuel technologies at the regional and national levels the following main strategies and recommendations have been identified:

(a) Inappropriate technologies and energy generating technologies not commercially proven including improved nuclear energy technologies should not be introduced.

(b) Identify suitable acceptable energy sources to meet the higher levels of energy consumption as the economies of developing countries expand, without further impacting on the region.

(c) Improve regional and international cooperation arrangements that assist in facilitating capacity development and the transfer of acceptable and relevant technology to reduce the environmental impact of the development of fossil fuels and to reduce the associated local health hazards and environmental pollution.

F. Renewable Energy

Situation and Challenges

47. Renewable energy in its modern forms is a regional priority. However, in total, it plays a relatively minor role in the total energy balance. The general need is for increased development and utilisation of renewable energy sources, implementation of better financial schemes for smoothing initial capital costs, improved system efficiency, and well-structured demonstration and training activities/programmes.

48. Although nearly all countries in the region have adopted strategies for promoting renewable energy, successes have been limited. The capital cost of renewable energy technologies still remains relatively high in comparison to the alternate traditional fossil fuel options, along with a number of other distinct barriers and constraints. Policy options and strategies for the wider application of renewable energy need to recognise the diversity of national circumstances, as well as the need for guidelines for the adoption of appropriate technology options.

49. Assistance continues to be provided within the Pacific region in developing national energy policy statements. These policies link renewable energy to sustainable development, consistent with environmental, legal, and regulatory policies and frameworks. These statements provide a framework for attracting investment; and a clear policy message to key actors and donors.

Strategies and Recommendations

50. In considering renewable energy policies at the regional and national levels the following main strategies and recommendations have been identified:

(a) Increase development and utilisation of renewable energy sources through national and regional efforts and international cooperation, specifically to increase technology transfer and investments in mature renewable energy technologies.

(b) Compare the real environmental costs of fossil fuel and renewable alternatives, including global emissions.

(c) Strengthen national capacity in policy, institutions, technology, financing and commercialisation.

(d) Consider gender and specific energy concerns of women, public participation, grass-roots involvement, competition between food and biomass energy, and other priority community needs such as access to water, education and information.

(e) Intensify renewable energy development in view of its potential for the reduction of emissions in the context of the clean development mechanism.

(f) The regional organisations should continue to provide assistance to the public sectors on policy and regulation, to provide the necessary interface for programme promotion, to serve a catalytic role by providing public information, to encourage participatory approaches involving NGOs and community-based organisations; and facilitate institutional networks through demonstration projects.

(g) Increase funding for the development of national / regional renewable energy expertise.

51. In considering renewable energy technologies at the regional and national levels the following main strategies and recommendations have been identified:

(a) Establish regional networks and centres of excellence for the exchange of experience in the development and application of renewable energy, research and development cooperation, including joint development projects, the sharing of testing and training facilities and South-South cooperation for capacity-building.

(b) Disseminate technology options at the national, regional, and international levels for mature solar, wind, biomass and other renewable energy technologies.

(c) Learn from past experience and establish closer links between research, development and industry.

(d) Promote trade in renewable energy devices and systems and facilitate the creation of an enabling environment for rapid market growth.

(e) Support national efforts to build organisational and manufacturing capacity for the production and diffusion of renewable energy technologies.

(f) Strengthen linkages between existing regional and international mechanisms, such as the Global Environment Facility, and renewable energy technology development and utilisation.

G. Energy-related Issues in Transportation

Situation and Challenges

52. The transportation sector is a predominant consumer of imported energy and this is of serious concern regionally as well as internationally. Although the demand continues to grow this increase this has not been as high as it could have due to the improvement in the efficiency of vehicles and technological advances. In the past the transport sector has frequently been neglected and therefore needs to be incorporated into long-term plans. National-level policies can focus on increasing efficiency, developing markets and technologies for alternative fuels and vehicles and putting in place adequate emission control measures with effective enforcement procedures.

53. The environmental impact of transportation fuels related to carbon dioxide and other polluting emissions have stimulated research and development on alternative fuels and technologies. The available alternative transportation fuels that have attracted the most interest and for which technology is actively being tested and developed are natural gas, electricity, liquefied petroleum gas, methanol, ethanol, coconut oil, rape seed oil, methyl ester and hydrogen. Passenger vehicles offer the greatest opportunity for improving energy efficiency and reducing environmental impacts using advanced technology and alternative fuels. In the future the possibility will exist to consider these alternate fuels for use in the transport sector. As has been the case with new technologies in other sectors there will be a significant requirement for training, education, public awareness and new infrastructure.

54. The major policy objectives in the transportation sector are to ensure the efficient and effective use of the transportation system to underpin growth in economic activity, ensure that energy policies do not adversely affect the ability of the transportation system to meet the needs of all sectors of society for mobility and accessibility and mitigate the adverse impacts of transportation-related activities on human health and productivity and environmental quality. The implementation of these policies and regulatory mechanisms will help reduce local air pollution, national and regional acidification and greenhouse gas emissions.

Strategies and Recommendations

55. In considering energy-related issues in transportation at the regional and national levels the following main strategies and recommendations have been identified:

(a) Promote as appropriate alternative fuels ensuring that technologies are fully proven, the costs are affordable, training and public awareness is provided, and the necessary infrastructure to establish these is available.
(b) Improve energy efficiency within each transportation mode, including sea transport.
(c) Ensure the importation and supply of cleaner and better quality fuels.
(d) Improve the effectiveness and availability of public transport systems.
(e) Discourage the import of fuel inefficient vehicles.
(f) Institute and enforce adequate emission control measures with effective enforcement procedures.

H. International Cooperation

Situation and Challenges

56. The situation faced by Pacific island countries underscores the need for intensifying national, regional and international cooperation, in order to move towards sustainable patterns of production, distribution and utilisation of energy. Many issues lend

themselves to constructive dialogue and genuine partnership based on mutual interests and benefits at the international level, and point to the need for private-public partnerships, both domestically and internationally, and both bilaterally and multilaterally.

57. Official development assistance (ODA) remains a significant source of external funding for many developing countries. Moreover, it plays an important complementary and catalytic role in promoting sustainable development. However, there are opportunities to improve the effectiveness and sustainability of support to the energy sector and related programmes. Development partners can help by strengthening international and regional cooperation in the field of energy. Two areas of great potential are: domestic efforts to provide adequate modern energy services to all sections of the population in an environmentally sound manner, and policies and plans that take into account the economic, social and environmental aspects of the production, distribution and use of energy. Noting the requirement for the proper management, handing and disposal of by products and residuals such as waste oil, waste chemicals, PCBs, batteries etc. and that these are adequately addressed.

58. Pacific island countries need to create a favourable climate for increased investment by the international community, including the private sector. It is anticipated that this could be achieved by adopting relevant policies, fiscal incentives and long-term investor security. This will assist in securing donor support for activities in energy and related areas. In addition will assist in the effort to mobilise capital for investment in support of sustainable energy development.

59. There is, therefore, a need for an evolving commitment to increased investments and financial flows, for the transfer of relevant technology and for promotion efforts in research and development in these areas. It is also of crucial importance that international cooperation also be directed at building human and institutional capacity.

Strategies and Recommendations

60. In considering international cooperation at the regional and national levels the following main strategies and recommendations have been identified:

(a) Provide information on the available and appropriate international mechanisms that can be utilised effectively to transfer acceptable clean technologies.

(b) Provide to Pacific island countries information regarding financial and technology developments taking place worldwide.

(c) Facilitate the formulation and application of appropriate standards in the production, conversion, distribution and utilisation of the various energy services.

(d) Increased financial support from multilateral financial institutions through concessional mechanisms to developing countries in support of their efforts in implementing sustainable energy development programmes and projects.

(e) Assist in developing economic and financial instruments including restructuring; liberalisation; privatisation of the financial and energy sectors and the proposed clean development mechanism.

(f) Assist in efforts of human and institutional capacity strengthening through training programmes and regional centres.

IV. Conclusions

61. Energy plays an important and critical role in the Pacific region. The very fact of remoteness from international markets, the very diverse and sparse spread of the countries over a large ocean area causes the region to be unique. These factors make it imperative to have the proper skills and management so as to be able to achievement of the goals of sustainable development.

62. Examination of some of the key issues in the debate on energy and sustainable development clearly show that achieving a sustainable future will require the concerted effort at all levels of Government, the private sector, society and the international community.

63. Therefore the key issues identified throughout the paper have been highlighted here as those that are required for the region so as to achieve the long-term object of sustainable energy supply and demand for the region.

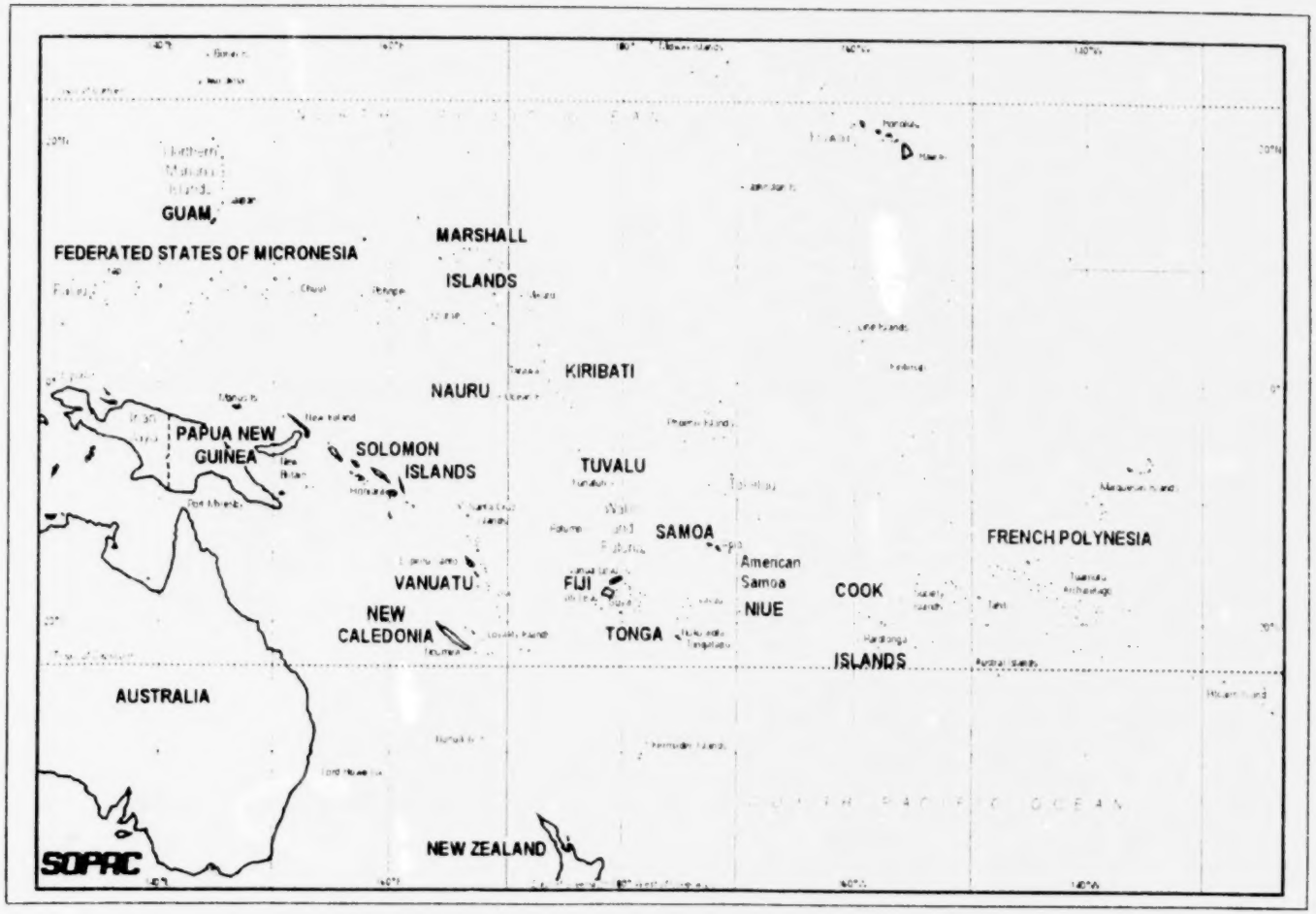
ANNEX A: A SUMMARY OF PACIFIC ISLAND COUNTRIES AND TERRITORIES

	Political status	Land area (sq km)	EEZ (million sq km)	Population (1998-99 estimate)	GDP per capita (US$)	Geographic type	Main energy issues	Importance of the energy sector
American Samoa	Unincorporated US territory	240	0.39	61,100	4,660	High islands, with a few atolls		
Cook Islands	Self-governing in free association New Zealand	237	1.83	16,500	4,947	High islands and atolls	Cost effective electricity supply Pilot sustainable renewable energy Projects Capacity building	Priority in economic development
Federated States of Micronesia	Self-governing in free association with US	702	2.78	116,400	2,070	High islands and atolls	Heavy reliance on fossil fuels High cost of supply of petroleum products Human and institutional capacity building Transfer of appropriate technology to diversify energy resource base Commercialisation / Corporatisation of utilities Environmentally sound / efficient use of energy	Sustainable social and economic development
Fiji	Independent state	18,333	1.29	801,500	2,864	High islands a few minor atolls	Heavy reliance on fossil fuels Commercialisation of rural electrification /electricity supply Capacity building	Economic development
French Polynesia	Overseas territory of France	3,521	5.03	222,300	16,750	High islands and atolls		
Guam	Unincorporated US territory	541	0.22	149,600	15,541	High island		
Kiribati	Independent state	811	3.55	88,600	702	Predominately Atolls	Rural electrification Sustainable electricity utility for urban areas Energy efficiency and conservation Reducing the cost of landed petroleum products	To increase the standard of living of nationals through an accessible, cost effective and environmentally friendly energy technologies
Marshall Islands	Self-governing republic in free association with US	720	2.13	63,200	1,182	Atolls		
Nauru	Independent state	21	0.32	11,300	3,450	Raised coral Island	Heavy reliance on fossil fuels Limited human and institutional capacity Requirement for energy information	To realise the economic significance and benefits of renewable energy and other technologies

	Political status	Land area (sq. km)	EEZ (million sq. km)	Population (1998-99 estimate)	GDP per capita (US$)	Geographic type	Main energy issues	Importance of the energy sector
New Caledonia	Overseas territory of France	18,576	1.74	202,800	13,301	High island		
Niue	Self-governing in free association with New Zealand	259	0.39	2,100	3714	Raised coral Island	Promote the use of renewable energy Heavy reliance on fossil fuels Protection of the environment	To reduce the dependence on fossil fuels by using renewable energy Economic development
Palau	Self-governing republic in free association with the US	475	0.63	18,100	5.330	High islands and atolls		
Papua New Guinea	Independent state	462,243	3.12	4,692,400	1196	High islands – a few small atolls	Reliance on fossil fuels Use of renewable energy Environmental protection	Priority in the resource development plan
Pitcairn	British Overseas Territory	4.5	0.80	40		One volcanic island and 3 coral atolls	Heavy reliance on diesel fuel Logistical difficulty with storage and the high cost of transport of diesel fuel	Provision of electricity to the public and the ability to maintain a basic standard of living for citizens
Samoa	Independent state	2,935	0.12	168,000	1060	High islands	Develop human and institutional capacity Effective planning and management for development of sustainable energy projects Acceptance and enforcement of performance and environmental standards backed by appropriate legislation	Social and economic development Sustainable development and energy projects (renewable) Energy efficiency and conservation
Solomon Islands	Independent state	28,370	0.60	408,400		High islands – a few atolls		
Tokelau	Dependency of New Zealand	12	0.29	1,500		Atolls	High reliance on fossil fuel Human and institutional capacity requires developing Conservation and energy efficiency	Economic development by improving the quality of life and employment opportunities

	Political status	Land area (sq km)	EEZ (million sq km)	Population (1998-99 estimate)	GDP per capita (US$)	Geographic type	Main energy issues	Importance of the energy sector
Tonga	Independent kingdom	649	0.07	100000	1157	High islands – a few small atolls	Dependence on imported petroleum products Insufficient human and institutional capacity Lack of information and energy awareness Limited financial mechanisms	Priority in developing rural / remote areas and commercial activities
Tuvalu	Independent state	26	1.30	9,600	1157	Atolls	High dependence on imported petroleum products for Power generation and transport Electrification of outer islands Requirement to further develop renewable energy projects	Control impact of energy projects on the environment Development of projects Establish and implement sustainable and cost efficient energy
Wallis and Futuna	Overseas territory of France	255		14,200		High islands and atolls		
Vanuatu	Independent state	12,190	0.71	193,200	1231	High islands – a few small atolls	High electricity tariff rates Lack of human and institutional capacity High dependency on imported fossil fuels Need to develop alternate renewable energy techno (geothermal)	Economic development

ANNEX B: MAP OF THE PACIFIC ISLAND COUNTRIES AND TERRITORIES



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Letter dated 29 January 2001 from the Permanent Representative of Indonesia to the United Nations addressed to the Secretary-General

I have the honour to transmit to you the report of the High-Level Regional Meeting on Energy for Sustainable Development of the Economic and Social Commission for Asia and the Pacific, which was hosted by the Government of Indonesia and held in Bali from 21 to 24 November 2000 (see annex).

Considering the importance of the Meeting as part of the regional intersessional activities leading up to the second session of the Ad Hoc Open-ended Intergovernmental Group of Experts on Energy and Sustainable Development, to be held from 26 February to 3 March 2001, and the ninth session of the Commission on Sustainable Development, to be held from 16 to 27 April 2001, I should like to request your kind assistance in issuing this letter and its annex as a document of the Commission.

(*Signed*) Makarim **Wibisono**
Ambassador
Permanent Representative

01-23967 (E) 130201

Annex to the letter dated 29 January 2001 from the Permanent Representative of Indonesia to the United Nations addressed to the Secretary-General

Report of the High-Level Regional Meeting on Energy for Sustainable Development

Bali, Indonesia, 23-24 November 2000

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I. MATTERS CALLING FOR ACTION BY THE COMMISSION OR BROUGHT TO ITS ATTENTION

1. In shifting from agenda to action, the Meeting recognized the need to formulate appropriate policy and regulatory frameworks to build strategic partnerships among stakeholders in meeting the objectives of sustainable energy development.

2. The Meeting underlined the close correlation between access to modern energy, social development and alleviation of poverty. It requested the governments to work for the electrification of rural areas and use all available means to extend energy services to the poor. It recommended that efforts to utilize renewable energy in rural areas should be further strengthened.

3. The Meeting stressed the need for enhanced focus on the introduction of measures to improve the efficiency of current energy production, distribution and consumption, and to support activities in favour of energy efficiency and conservation, including demand-side management.

4. The Meeting stressed that financial assistance from the international community, including private and public funding, was of the utmost importance if the region were to succeed in implementing sustainable energy projects. It noted with appreciation the valuable inputs from the Business Forum, urging the need to ease the way for increased private sector involvement by creating investment-friendly environments. It also noted with appreciation the significant inputs from the NGO Symposium.

5. Recognizing energy pricing as an important economic instrument, the Meeting favoured the views of the Senior Officials that energy-pricing policies be structured to support sustainable energy development by creating a level playing field for renewable energy and energy-efficient technologies. However, it recognized the need to remove energy subsidies gradually.

6. The Meeting adopted, with minor amendments, the Sustainable Energy Development Action Programme, Strategies and Implementation Modalities for the Asian and Pacific Region, 2001-2005, as contained in document E/ESCAP/MESD/2 (see annex I).

7. The Meeting emphasized that the Action Programme should be implemented effectively and in that regard member countries and international organizations, civil societies, business committees and other stakeholders would enhance their concerted efforts to achieve the goal of sustainable energy development.

8. The Meeting requested international organizations and other entities to assist countries of the region in their capacity-building and in facilitating technology transfer in implementing sustainable energy activities.

9. The Meeting adopted, with minor amendments, the Bali Declaration on Asia-Pacific Perspectives on Energy and Sustainable Development, for submission to the Commission on Sustainable Development at its ninth session in 2001 as contained in document E/ESCAP/MESD/3 (see annex II).

10. The Meeting emphasized that the Declaration would serve as a guide and mandate for all stakeholders to take a bold step towards a sustainable energy future. It requested the Executive Secretary of ESCAP and the Chairperson of the High-level Regional Meeting to bring the Declaration as a regional input for the consideration of the Commission on Sustainable Development at its ninth session to be held in April 2001.

II. PROCEEDINGS OF THE MEETING

A. Regional perspective on energy and sustainable development for Asia and the Pacific into the twenty-first century

(Item 4 of the agenda)

11. The Chairperson of the Preparatory Meeting of Senior Officials, held on 21 and 22 November 2000, presented the report of the Meeting (E/ESCAP/MESD/1), highlighting its main conclusions and recommendations. The Preparatory Meeting called upon the High-level Meeting to adopt the draft sustainable energy development action programme, strategies and implementation modalities for the Asian and Pacific region, 2001-2005 (E/ESCAP/MESD/2), and the draft Bali declaration on Asia-Pacific perspectives on energy and sustainable development, for submission to the Commission on Sustainable Development at its ninth session in 2001 (E/ESCAP/MESD/3).

12. The Preparatory Meeting also brought the following to the attention of the High-level Meeting: the need to strengthen efforts towards the promotion of sustainable energy development and to identify concrete measures to mobilize financial resources; the recommendation that prices, including subsidies, should be structured to support sustainable energy development; the need for capacity-building in enhancing utilization of renewable energy and conducting research and development activities; the recommendation that the dialogue in support of technology transfer should be strengthened; the significance of cross-cutting issues to the Asian and Pacific region; and the importance of cooperation in general and among developing countries in particular.

13. The Meeting expressed appreciation of the excellent work undertaken by the Preparatory Meeting of Senior Officials in making a careful review and comprehensive assessment of the documents, and for making available the report of the Meeting.

14. The Meeting noted with appreciation the main outcomes of the NGO Symposium on Regional Perspectives and Initiatives on Achieving a Sustainable Energy Future for All, which was held on 21 and 22 November 2000 and attended by more than 50 representatives of non-governmental and non-commercial organizations. The NGO representative emphasized the vital role that NGOs played in the energy activities of almost all countries. In the NGO perspective, the cleanest possible energy should be accessible to all at affordable prices and on an equitable basis to achieve social and environmental goals. Each country should initiate a political process that established quantitative targets for energy production from renewable energy resources. NGOs also called for greater empowerment of underrepresented sectors of civil society in public sector decision-making, including energy policy formulation. The participants in the NGO Symposium recommended the establishment of a network for sustainable energy development. Sustainable energy projects should be developed for active NGO participation, for which adequate financial support should be provided from public funds and international donor support. The NGO representative drew the attention of delegations to the NGO position paper in which further details of the NGO perspectives were provided.

15. The Business Forum, held on 23 November 2000, in its statement to the Meeting, brought the following key recommendations to the attention of the governments of the Asian and Pacific region: (a) energy sector policies should be implemented to increase competition; (b) policy frameworks should be provided to enable risk-sharing between the host country and investors; (c) transparent fully cost-reflective pricing of energy should be secured, and subsidies targeted precisely to reach those for whom they were intended; (d) the initial phase of renewable energy

projects should be assisted in remote areas and then market mechanisms be allowed to cover maintenance and operation costs; (e) enhanced regional cooperation should be promoted to share experiences; and (f) the potential scope of increased energy efficiency to achieve sustainable development objectives should be acknowledged.

16. The Meeting also noted the policy statements made by the following intergovernmental organizations: ASEAN Centre for Energy, Mekong River Commission Secretariat; United Nations Educational, Scientific and Cultural Organization, United Nations Industrial Development Organization and G8 Renewable Energy Task Force.

17. The Meeting expressed deep appreciation to all the representatives who had taken the floor in the deliberations on that agenda item. It also took note with much interest of the presentations made by the chairpersons of the Preparatory Meeting of the Senior Officials on Energy for Sustainable Development, the NGO Symposium, and the Business Forum. It noted with appreciation the country policy statements delivered by the representatives and the presentations of the international and intergovernmental organizations.

18. The policy statements made by the country representatives highlighted their national policies and strategies towards promoting sustainable energy. Participating countries from the European Union also presented the European position on global action in view of the ninth session of the Commission on Sustainable Development.

19. The Meeting welcomed the strong indications of full commitment to the principles of energy for sustainable development by the countries of Asia and the Pacific. It noted that many countries were taking policies and measures towards promoting sustainable energy development and its linkage with other economic policies. Most importantly, it noted their commitment to do even more.

20. The Meeting noted that several countries sought enhanced international cooperation, financing and technical assistance. It noted that energy demand in the region would grow at a high rate as the per capita consumption base was currently very low. With the aim of employing a policy of using energy in an environmentally friendly way, there was a need to undertake various measures, such as fuel-switching, energy efficiency, technological improvement etc.

21. The Meeting appreciated the efforts of the countries in reforming the energy sector to encourage private sector participation. It stressed the need to realize the potential for cooperation among developing countries, particularly in the exchange of information, experience and expertise. In that respect, it noted with appreciation the offers made by some countries to assist interested countries in various ways.

B. Statement on a regional action programme and regional perspectives on energy and sustainable development

(Item 5 of the agenda)

22. The Meeting considered the draft sustainable energy development action programme, strategies and implementation modalities for the Asian and Pacific region, as contained in document E/ESCAP/MESD/2. Noting that the Preparatory Meeting of Senior Officials had reviewed, refined and endorsed the document for the consideration of the High-level Officials, the Meeting adopted, with minor amendments, the Sustainable Energy Development Action Programme, Strategies and Implementation Modalities for the Asian and Pacific Region, 2001-2005 (see annex I).

23. The Meeting emphasized that all concerned should play their respective roles in implementing the Action Programme. It urged the international community to assist the region in the implementation process by supporting activities in capacity-building, facilitating the transfer of technologies, and providing financial assistance.

24. The Meeting considered and adopted, with minor amendments, the Bali Declaration on Asia-Pacific Perspectives on Energy and Sustainable Development, for submission to the Commission on Sustainable Development, at its ninth session in 2001, as contained in document E/ESCAP/MESD/3 (see annex II). It attached great importance to the Declaration as a guide and mandate for action at the national, subregional, regional and international levels.

III. ORGANIZATION OF THE MEETING

A. Opening, duration and organization of the Meeting

25. The High-level Regional Meeting on Energy for Sustainable Development was held in Bali, Indonesia, on 23 and 24 November 2000.

26. The Minister of Energy and Mineral Resources, HE Mr Purnomo Yusgiantoro, welcomed the guests and representatives to the High-level Regional Meeting. He noted that the Government of

socio-economic growth and development as well as for protection against environmental degradation. He also noted that the Meeting was timely for instigating a new vision for international cooperation on energy and sustainable development to fulfil long-term energy needs. He also noted the high-level participation in the Business Forum organized jointly by the Governments of Indonesia and Australia, as well as in the NGO Symposium organized by ESCAP. He expressed the hope that those events had provided opportunities for stakeholders in the energy sector to interact. In concluding, he expressed confidence that the High-level Meeting would meet its objective.

27. The Secretary-General of the United Nations, in his message delivered by the Executive Secretary of ESCAP, stressed the need for financing. He also underlined the close correlation between development, poverty alleviation and access to energy. He therefore advocated the need to bring adequate, affordable and reliable energy services to people living in poverty. Recognizing that the Asian and Pacific region would continue to face increasing demand for energy for its economic growth, he cautioned that a sustainable path of development must be found through an appropriate mix of fuels, changes in production and consumption patterns, and policies to minimize the environmental impact. Noting that partnership would be crucial, he expressed satisfaction that energy policy makers, business communities and NGOs of the region had gathered in Bali to discuss the issues concerned and to adopt a regional action programme.

28. In his opening statement, the Executive Secretary of ESCAP welcomed the delegations to the Meeting. He expressed deep gratitude to the Government of Indonesia for its support and warm hospitality. Noting that energy was one of the main drivers of socio-economic development, he cautioned that if the current pattern was allowed to continue, energy production and consumption would have a tremendous detrimental impact on the environment. He noted that the challenges were enormous but expressed the hope that, through concerted individual and collective efforts in search of a sustainable energy future, it would be possible to ensure the needed energy services, while minimizing the financial, environmental and social costs. He called upon all stakeholders to work together to establish policies and strategies and implement them.

29. The Director of the Sustainable Development Division of the United Nations Department of Economic and Social Affairs also delivered a statement, expressing gratitude to the Government of Indonesia and all representatives for demonstrating goodwill and commitment to sustainable energy development. Noting that energy was at the core of environment and development, she stressed the need to take a sustainable approach to meet energy needs. The Asian and Pacific region, with its unique characteristics of encompassing both rapidly industrializing and developing countries, had the prospect of becoming a world leader in addressing regional and global environmental problems. She also noted the importance of regional inputs into the ninth session of the Commission on Sustainable Development, and that the input from the Asian and Pacific region could make a substantial impact at the global level.

30. The Vice-President of the Republic of Indonesia, HE Ms Megawati Soekarnoputri, in her inaugural address, welcomed the delegations attending the Meeting. Indonesia, like many other countries in the world, was aware of the magnitude of the role of energy in the socio-economic life of the people. Within the context of sustainable development, she emphasized the importance of developing policies which must be effective, efficient and environmentally friendly. While developing such policies was not easy, the policies were needed to address poverty alleviation, as the majority of humankind whose needs for energy had not been adequately met lived in the ESCAP member countries. However, the Vice-President assured the Meeting that Indonesia would continue to develop by making use of energy in a long-lasting and sustainable manner through enhancing its capacity to utilize energy in line with endeavours to preserve the environment. She expressed her fervent hope that the High-level Meeting would identify further steps to translate strategies into programmes which needed to be taken to advance and enhance intergovernmental cooperation as well as the partnership between the public sector and the private sector, at both the bilateral and regional levels. In concluding, she conveyed her appreciation to all, including ESCAP, the United Nations Department of Economic and Social Affairs, and the Governor of Bali, who had assisted in convening the Meeting. She was confident that the Meeting would succeed in bringing about useful results for cooperation and implementation at the national, regional and global levels.

B. Attendance

31. The High-level Meeting on Energy for Sustainable Development was attended by the following members and associate members of ESCAP: Armenia, Australia, Bangladesh, Brunei Darussalam, Cambodia, China, Cook Islands, Democratic People's Republic of Korea, Fiji, France, India, Indonesia, Islamic Republic of Iran, Japan, Kiribati, Kyrgyzstan, Lao People's Democratic Republic, Malaysia, Marshall Islands, Mongolia, Myanmar, Nepal, Pakistan, Palau, Papua New Guinea, Philippines, Republic of Korea, Samoa, Singapore, Sri Lanka, Tajikistan, Thailand, Tonga, Turkey and Viet Nam.

32. The representatives of the following other states also attended: Denmark, Libyan Arab Jamahiriya, Morocco, South Africa, Sweden and Switzerland.

33. The following United Nations bodies and specialized agencies were represented: United Nations Department of Economic and Social Affairs, Regional Commissions New York Office, United Nations Environment Programme, United Nations Educational, Scientific and Cultural Organization, International Bank for Reconstruction and Development and United Nations Industrial Development Organization.

34. Representatives of the following intergovernmental organizations attended: ASEAN Centre for Energy, Asian Development Bank, Forum Secretariat and Mekong River Commission Secretariat.

35. Representatives of the following non-governmental organizations, other entities, and observers also attended: Adelaide University, All India Women's Conference, Asian Institute of Technology, Electricity Generating Public Company Ltd. (Thailand), Energy Conservation Center, Japan, Foundation EDP (Viet Nam), G8 Renewable Energy Task Force, Hankuk University of Foreign Studies, Himalayan Light Foundation, India Oil and Natural Gas Corporation Limited, International Federation of Business and Professional Women, International Institute for Energy Conservation, Japan International Cooperation Agency, New Energy and Industrial Technology Development Organization, PELANGI Indonesia, People Centered Business and Economic Institute, PYMBLE (Australia), Resource Development Ltd. (New Zealand), UNCSD NGO Caucus on Energy and Climate Change and World Confederation of Labour.

C. Election of officers

36. The Meeting elected HE Mr Purnomo Yusgiantoro (Indonesia) Chairperson, Hon. Warren Entsch (Australia), HE Mr Ith Praing (Cambodia), HE Mr Habiballah Bitaraf (Islamic Republic of Iran), HE Bountiem Phissamay (Lao People's Democratic Republic), HE Mr Ulambayar (Mongolia), HE Brigadier General Lun Thi (Myanmar), Hon. Ben-Hur C. Salcedo (Philippines), HE Mr Savit Bhotiwihok (Thailand), HE Mr Hoang Trung Hai (Viet Nam), Vice-Chairpersons, and Ms Apisake Soakai (Tonga), Rapporteur.

D. Agenda

37. The Meeting adopted the following agenda:

1. Opening of the Meeting.
2. Election of officers.
3. Adoption of the agenda.
4. Regional perspective on energy and sustainable development for Asia and the Pacific into the twenty-first century.
5. Statement on a regional action programme and regional perspectives on energy and sustainable development.
6. Other matters.
7. Adoption of the report.

E. Other matters (Item 6 of the agenda)

38. The Meeting expressed deep appreciation to the Government of Indonesia for hosting the High-level Meeting on Energy for Sustainable Development. It also extended its thanks to the National Organizing Committee in Bali and in Jakarta for providing excellent host facilities and generous hospitality.

39. The Pacific island developing states expressed their concern over the lack or inadequate level of representation in international forums as a result of insufficient support or late information. They requested assistance in enhancing financial support as well as in capacity-building to enhance their absorptive capacity in implementing the Regional Action Programme just adopted.

F. Adoption of the report

(Item 7 of the agenda)

40. The High-level Meeting on Energy for Sustainable Development adopted its report on 24 November 2000.

ANNEXES

Annex I

SUSTAINABLE ENERGY DEVELOPMENT ACTION PROGRAMME, STRATEGIES AND IMPLEMENTATION MODALITIES FOR THE ASIAN AND PACIFIC REGION, 2001-2005

SUMMARY

A number of critical issues of major concern to the region were identified at the High-level Regional Meeting on Energy for Sustainable Development held in Bali, Indonesia from 21 to 24 November 2000. Taking these critical issues into consideration as well as the Regional Action Programme for Environmentally Sound and Sustainable Development, 2001-2005 adopted by Ministers attending the Ministerial Conference on Environment and Development in Asia and the Pacific, 2000 in Kitakyushu, Japan, on 4 and 5 September 2000, the present document proposes specific activities, strategies and implementation modalities to be undertaken in order to attain a sustainable energy development path.

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INTRODUCTION

1. Policies and programmes of sustainable development were initiated in various countries by national and international organizations following the United Nations Conference on the Human Environment, held in Stockholm in 1972. The efforts were intensified after the historic Agenda 21 was adopted as the blueprint for sustainable development at the United Nations Conference on Environment and Development, held in Rio de Janeiro, Brazil, in 1992. Sustainable energy development has been at the core of many of these programmes, as energy production and consumption activities are closely linked with issues of sustainable development. Sustainable development efforts are directed mainly towards social aspects, such as poverty alleviation and environmental protection. Accessibility to commercial energy[1] supply is essential for any programme of alleviating poverty through the provision of basic minimum human needs or increasing employment opportunities. The increasing production of energy should, however, be effected in ways that are both economically and ecologically sound. Sustainable energy development programmes were designed in consonance with these objectives. While significant progress has been made in some countries of the Asian and Pacific region, there are wide gaps in most countries between intention and action, and between action and achievement. This paper seeks to review briefly what has been done already and ways in which sustainable energy development efforts can be accelerated.

2. The broad reasons for the unsatisfactory outcome of sustainable energy development efforts have been identified as the following:

(a) Since 1972, economic development has been significant in the region, but attempts to integrate environmental and social considerations into economic decision-making in many sectors of the economy have not been successful;

(b) Poverty alleviation and promotion of equity issues have not been considered in decisions in the energy and environment sectors in some countries;

(c) Regulatory intervention in many countries has not provided undistorted price signals. In some countries, efforts of regulators to mix the control instruments with market-based instruments have not been very successful;

(d) Funding of sustainable energy projects and programmes has been inadequate and continues to be based on traditional concepts of financial prudence. Innovative methods of financing have yet to be developed in most countries to promote investment in renewable energy projects and energy research and development programmes;

(e) Institutional changes have been marginal and institutions have largely failed to enlist the support of civil society, particularly local-level communities, which could and should have become the agent of change through participation in policy-making through advocacy and in implementation through partnerships;

(f) International and regional cooperation is still inadequate in the energy sector, although some concrete action has been taken in the subregional groupings.

3. Actions taken at the national and regional levels in respect of sustainable development have been reviewed on several occasions in ESCAP and in other forums. One such comprehensive attempt was the Regional Action Programme for Environmentally Sound and Sustainable Development, 1996-2000, adopted at the third Ministerial Conference on Environment and Development in Asia and the Pacific, held in 1995. This was reviewed at several expert group meetings and was further examined recently at the Preparatory Meeting of Senior Officials for the Ministerial Conference on

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[1] All forms of energy, including some biomass fuel, which are traded in the market.

Environment and Development, 2000, held in Kitakyushu, Japan, from 31 August to 2 September 2000.

4. The preparatory meeting in Kitakyushu reviewed the implementation experience of Agenda 21 and the Regional Action Programme for 1996-2000 and came to the following conclusions:

(a) The regional action programme for 1996-2000 had identified 24 programmes for priority action. Fewer, more targeted, achievable programmes should be adopted in future;

(b) An action plan should include practical mechanisms for implementation;

(c) In the region, the inadequate increase in official development assistance (ODA) had been compensated to some extent by an increase in private capital flows. However, private sector finance was not a full substitute for ODA as private sector funding failed to internalize externalities;

(d) All countries must be persuaded to accept and act on the view that the overarching need for poverty alleviation was a fundamental prerequisite to sustainable development that had not been accepted in practice in many countries;

(e) There was a need to intensify efforts to increase the degree of public access to information on sustainable development.

5. Based on these lessons learned and having considered the current and emerging critical issues, the Regional Action Programme for Environmentally Sound and Sustainable Development, 2001-2005 was discussed and adopted at the Ministerial Conference, held in Kitakyushu on 4 and 5 September 2000. It listed the following eight programmes areas:

(a) Environmental quality and human health;

(b) Biodiversity;

(c) Coastal and marine environments;

(d) Freshwater resources;

(e) Desertification and land degradation;

(f) Globalization and policy integration;

(g) Climate change;

(h) Sustainable energy development.

Although sustainable energy development is listed as a specific programme area, energy-related actions, policies and programmes are also included in the other relevant programme areas.

6. At the Preparatory Meeting, it was noted that an increase in demand for energy was inescapable in view of the high economic growth prospects in the countries of the ESCAP region but that such increase in energy demand had to be met by a choice of fuels and technologies which would keep the negative environmental impact to the minimum possible level. The need to refine energy environment policies with a clear focus on poverty alleviation was emphasized. In keeping with those ideas, a mission statement was developed.

I. MISSION STATEMENT FOR SUSTAINABLE ENERGY DEVELOPMENT

7. The mission statement for sustainable energy development incorporated in the regional action programme for 2001-2005, reads "to enhance the capacity of concerned stakeholders in developing sustainable energy development strategies under which energy services can be expanded and

improved with a minimum compromise on environmental quality." Due weightage must be given in focusing on poverty alleviation, equity and social justice.

II. AREAS FOR ACTION

8. In the programme area on sustainable energy development of the Regional Action Programme for 2001-2005, the following areas for action have been identified:

(a) Developing policies to promote energy utilization for poverty alleviation by ensuring energy availability at affordable prices;

(b) Strengthening planning capacity on sustainable energy development by establishing clear linkages to other sectors;

(c) Promoting implementation of a supply- and demand-side energy efficiency programme in the region;

(d) Promoting the application of renewable and clean energy technologies in the region;

(e) Promoting and assisting a dedicated global project to create 100 per cent renewable energy in the small island developing states of the region;

(f) Mobilizing financial resources from traditional sources and the private sector.

9. Those areas of action are discussed below with the short-term and long-term activities that could be undertaken in each of them.

A. Strengthening planning capacity in sustainable energy development by establishing clear linkages to other sectors

10. After the Rio Conference in 1992, ESCAP took several initiatives to promote the incorporation of environmental protection concerns in energy planning. Such planning exercises have become more complex due to liberalization, which has reduced the importance given to overall economic planning. Furthermore, the international energy price has become volatile and unpredictable. Nonetheless, in spite of the growing complexity, the need to have a long-term sustainable energy development plan with adequate understanding of the environmental and equity issue is becoming critical.

11. In the short term, the activities to be taken up include the following:

(a) Database development and maintenance should be pursued through systematic collection of data relating to energy potential, consumption patterns and levels, and environmental pollution. Arrangements for this should be made, not only through government sources but by enlisting the cooperation of civil society. This activity would require a substantial amount of human and financial resources and needs to be designed on a long-term basis;

(b) The awareness and understanding of civil society on the linkages between energy and other economic and social sectors should be enhanced. Discussions through a variety of media on issues related to sustainable energy in various sectors will have to be arranged periodically to disseminate information and to increase awareness, understanding and commitment;

(c) The key sectors or geographical areas where there is immediate scope for action on sustainable energy development should be identified with the cooperation of the agencies of civil society;

(d) Special consideration should be given to disadvantaged groups of society, for the equitable distribution of energy.

12. As a long-term activity, the necessary legal and institutional arrangements should be designed and set up to support sustainable energy development, including research, development and demonstration of innovations in technology and institutional arrangements.

B. Developing policies to promote energy utilization for poverty alleviation

13. There is a vicious circle in which lack of required energy in terms of quality and quantity leads to poverty, which in turn leads to a reduction in or even denial of access to existing sources of energy, leading to greater poverty. It is recognized that, of around 2.0 billion people in the world who are deprived of the minimum needs of energy, a majority live in the ESCAP region.

14. The poor in both rural and urban areas face different kinds of energy deprivation. In most urban areas, the distribution networks have been established in respect of electricity as well as kerosene and liquefied petroleum gas, but access to electricity in particular is made difficult by poverty.

15. In rural areas in many developing countries, the electricity networks have not been extended. The petroleum product distribution networks established by the oil companies do not extend to rural areas in many countries. A number of intermediaries work in sequence to bring the supply to the rural poor and, ultimately, the poor in the rural areas pay more for their fuel needs than their city counterparts.

16. To remedy this situation in the short run, it is necessary to carry out the following measures:

(a) To develop policies which enable the generation of small-scale power and the extension of the electricity grid and supply systems for kerosene or clean biofuels to areas where the rural poor live;

(b) To simplify procedures to enable the poor to receive the basic requirement of electricity and kerosene;

(c) To subsidize the lifeline supply of energy to the poor by treating the environment and distribution infrastructure as a "sunk cost" (investment for general socio-economic development) and not counting it when the retail energy price is being fixed;

(d) To promote decentralized management of energy systems based on purchasing bulk power from the grid and distributing it in small rural habitations, using locally available labour and entrepreneurship;

(e) To promote, wherever possible, decentralized power generation projects based on biomass or other renewable energy resources which can increase employment opportunities for the rural poor through public-private cooperation. A capital (one-time) subsidy could be given based on the remoteness of the rural habitation and the likely public cost of extending grid power.

17. Harnessing investment for building the infrastructure to supply energy to the poor in rural areas continues to be a problem. The governments should accept the responsibility for extending energy supply to the poor and should have policies that encourage the absorption, in full or in part, of the capital costs of energy infrastructure for supply to the poor. The investments for extending the infrastructure for energy supply to the poor in both urban and rural areas should be borne as part of the socio-economic investment and treated as a sunk cost in calculating energy supply charges for the poor. This is a very pragmatic suggestion to break the vicious circle of poverty and energy consumption and deserves the attention of economic planners of developing countries.

18. The setting up of local resource-based power plants using resources such as biomass can generate large employment opportunities for every megawatt installed, as well as stimulate employment through small industries. Energy distribution companies managed by local people will reduce the operating costs of distribution and can stimulate employment opportunities.

19. As a long-term activity, it is necessary to take up systematic decentralized planning to provide clean, sustainable, affordable energy to each village based on the optimal choice of fuels and supply sources, including the supply of electricity from the grid. These decentralized energy entities in rural areas should be provided with technical, financial and managerial support by public institutions such as "incubator companies" in the computer industry.

C. Promoting the implementation of a supply- and demand-side energy efficiency programme in the region

20. The use of energy in traditional or even with modern technologies ends up with only a part of the heat values of primary fuels being used effectively, while the rest of the primary energy is wasted. It is generally accepted that approximately two thirds of the primary energy is lost in various stages of conversion, transmission and distribution under conventional technologies.

21. On the supply side, in the fuel industry, especially in the electricity industry, there is enormous scope for efficiency gains at each stage of the supply chain from generation, transmission and distribution. Switching environmentally friendly fuels, such as natural gas, may also reduce the quantity of energy required, if flexibility is available.

22. In order to realize this energy efficiency gain on the demand and supply side, some of the following short-term activities could be taken up:

(a) At the subnational and national levels, efforts should be initiated to improve the awareness of the potential for energy efficiency gain among residential, industrial, transport and agricultural consumers. The understanding and appreciation of the real costs and the potential for saving are obscured by various subsidies for fossil fuels technologies. In each country, the potential and problems of efficiency improvement should be documented and discussed with civil society;

(b) Energy audit for different industries is already available in many countries of the Asian and Pacific region. Where it is not, immediate nationwide energy audit programmes, including establishing proper guidelines for energy audit, could be launched in energy-intensive industries. The results of these audits should contribute to demand-side management. Rating of appliances and differential tariffs to penalize wasteful use of electricity could be devised;

(c) Private-public and stakeholder partnerships to realize energy efficiency potential should be identified and promoted. The different energy users could get into partnerships in developing projects such as captive collective power plants to take advantage of economies of scale and reduce environmental pollution. In some countries, the laws may need revision to make these possible. In the upstream oil and gas industries, cost reduction initiatives should be encouraged through the application of the minimum facilities concept, the sharing of inventories and services.

23. With regard to long-term measures for energy efficiency, there is a need to look at every single industry and examine the potential for shifting over to a new technology which will be more energy-efficient and cause less environmental impact. In the transport sector, in selected cities, replacement of petrol-driven vehicles by vehicles driven on compressed natural gas or electricity could be considered. In the meantime, a reliable and efficient mass transport system needs to be developed. These measures would enhance air quality in large cities in the region.

24. A whole shift is possible towards a much more energy-efficient technology in certain major energy-intensive industries, including the chemical and steel industries, if efforts are backed up by research and development and accepted by the private sector.

D. Promoting the application of renewable and other clean energy technologies in the region

25. The adoption of renewable and other clean energy technologies reduces the adverse environmental impact to near-zero levels and opens up the possibilities of bringing the economic

and social benefits to the rural people. Moreover, if traditional energy use methods were replaced by state-of-the-art energy technologies, employment opportunities would increase in rural areas. In spite of the fact that renewable energy technologies are win-win options, they do not normally receive the attention that they deserve and are seldom adopted because the relative cost benefits become distorted by the explicit and implicit subsidies extended to fossil fuel energy technologies and because of the relatively small size of the technologies. Many of the viable renewable energy technologies have not been adequately popularized and aggressively commercialized for want of institutional arrangements to provide support for such installations at the stages of planning, financing and operating.

26. However, there are several examples within the ESCAP region of countries with successful implementation of projects for renewable and other clean energy technologies. A number of them provide lessons which could be used in the adoption of nationwide micro-sized energy projects which have broad social acceptance by communities. Some countries of the region have registered good progress in introducing renewable and other clean energy technologies through appropriate institutional arrangements.

27. The increasing cost of oil-based power and the poor quality of electricity supply through the grid has given a boost to renewable technology in rural areas. While it is necessary to overcome the complexities related to the Clean Development Mechanism under the Kyoto Protocol to the United Nations Framework Convention on Climate Change, it has drawn the attention of many countries of the region towards the promotion of renewable and other clean energy technologies that reduce greenhouse gas emissions.

28. Now is the appropriate time to take up the specific activities that would promote renewable and other clean energy technologies. The short-term activities should include the following:

(a) Identifying, through a comprehensive survey and consultation of needs and resources, the renewable and other clean energy technologies that are relevant to specific areas in each country and to specific sectors;

(b) Involving local communities, non-governmental organizations and women's groups in the planning and implementation, management and evaluation of energy projects;

(c) Reviewing energy pricing policies and gradually reducing the subsidies on fossil fuels;

(d) Promoting the adoption of decentralized energy systems for lighting, cooking and small (agro) industrial motive power through joint ventures with private-public participation;

(e) Encouraging commercial banks in the public and private sector so that they will provide funding for small renewable and other clean energy projects through "line of credit" arrangements provided by international financial institutions;

(f) Promoting enhanced technical cooperation among countries of the region. Some of the countries in the region have expertise and experience (technological and promotional) in some renewable and other clean energy technologies; these should be carefully identified and their assistance sought for technology transfer;

(g) Encouraging energy service companies to provide managerial and operational support for microlevel energy installations by households and small industries.

29. The measures required for long-term activities include:

(a) A review of energy-pricing policies with a view to gradually reducing all subsidies across the board and to depoliticizing the fixing of energy prices by setting up independent regulatory bodies or agencies over a definite time frame. It may be noted here that, as long as poverty continues, there will be a need to extend some well-focused and targeted subsidies to the

poor to enable them to meet their minimum energy needs. But such subsidies have to be arranged in ways that do not disturb the possibilities for a level playing field in the energy market;

(b) Appropriate institutional arrangements have to be designed and established with nationwide coverage and in partnership with all the stakeholders to support the renewable energy-based technologies irrespective of scale.

E. Promoting and assisting a dedicated global project to create 100 per cent renewable energy in the small island developing states of the region

30. The ESCAP region has a number of small islands scattered in the Pacific region with several unique problems. The ecology of these small island developing countries is very fragile. The unique problems of these countries were discussed at the Global Conference on the Sustainable Development of Small Island Developing States, held in Barbados in 1994, and a Programme of Action for the Sustainable Development of Small Island Developing States was evolved. This affirmed that the sustainable development of these small states was both essential and achievable.

31. In August 2000, in Kitakyushu, while reviewing the progress on the Barbados Programme of Action, governments asserted that climate change remained their urgent and primary concern. While the Kyoto Protocol was assisting in a small measure to cope with climate change problems, it was urged that programmes should be organized to assist small island developing countries to reduce biomass consumption and fossil fuel. All possible technologies should be investigated for feasibility and promoted where appropriate to rational circumstances, with due consideration of available resources.

32. In the short term, it would be useful to initiate all the required surveys and studies and to prepare a feasibility report in a "bankable" format of a master plan for sustainable energy development in the small island developing states.

F. Mobilizing financial resources from traditional sources and the private sector

33. Funding the sustainable development of the energy sectors of the region will be one of the biggest challenges facing the countries themselves and the international community and international private and public financing institutions. Funds will also be required for energy development, energy transport and energy conservation. Infrastructure for the transportation of liquid fuels or natural gas through very large transnational or even transcontinental pipelines or for liquefaction and re-gassification facilities for liquefied natural gas will need heavy investment.

34. The nature of funding will depend on the type of projects, the technology involved, the size of the projects, the sponsoring agency as well as the special needs of the beneficiary population. Historically, most of this funding for the energy sector came from ODA and from international funding agencies such as the World Bank and the Asian Development Bank. While funding for large-scale projects from various sources can be directed to national governments or, with the support and guarantee of national governments, directly to projects, funding for small-scale projects would be possible only through country-level funding agencies under "line of credit" arrangements under softer terms.

35. In addition to ODA, the role of public and private investment is also of crucial importance to promote sustainable energy development. Considering the fact that most developing countries do not have institutional structures and are not adequately prepared to deal with the scale of risks associated with major energy investments, there is a need to expand existing international mechanisms or develop new mechanisms to identify risks and ensure that they are managed on a transparent basis and shared equitably between investors and host countries.

36. In order to fund innovative small and medium-sized energy projects, local venture capital funds need to be set up. These venture capital funds could mobilize resources from the domestic and international private sector and make equity capital available to small and medium-sized projects and entrepreneurs.

37. Philanthropic institutions could also take up this work. They might set up companies, which could fund ecologically sound and economically viable projects. They might also extend small grants towards project formulation.

38. The Global Environment Facility (GEF) has helped some countries in the region. A wider spread of GEF funds could be achieved only by making the procedures of appraisal of projects by GEF more "user friendly". There is also a need to consider setting up a funding mechanism at the regional level, that would have more flexibility to address energy projects. The fund should appraise projects according to the three objectives of sustainable energy development. It should examine (a) whether the project helps the poorer sections of the population by direct and indirect contribution; (b) whether it uses less energy than other projects to receive the same level of benefit; and (c) whether each additional unit of energy used produces less environmental impact.

39. There is a need to enhance the capacity of the developing countries in carrying out considerable preparatory work within the country in order to obtain funds from institutions and the private sector. The most important step is to have tariffs and prices fixed through independent regulatory bodies and agencies. The management of the energy industry should be professionalized. Government, however, could keep strategic control over energy security and the supply of the lifeline needs of energy of the poor.

III. TOOLS FOR IMPLEMENTATION

40. Action in the different priority areas for sustainable energy development could be undertaken using certain tools which are common to all areas. Some of the tools might be of relevance at the national level, while some may be useful for action at the subregional, regional or global levels.

41. The important tools for implementation, which we will discuss below, are the following: policy formulation and planning; strategic environmental management; governance, institutions and capacity-building; legislative and fiscal arrangements; technology networking and transfer; environmental and energy education, information, public awareness and training towards sustainable development; poverty alleviation, and regional cooperation and energy trade.

A. Policy formulation and planning

42. The urgent need for action towards sustainable energy development is well recognized. In the normal course of events, these concerns should be incorporated in national economic plans, but in recent times the trend towards marketization and globalization has considerably reduced the emphasis on planning at the national level. Sustainable energy development requires a long-term view of energy and related sectors. Considerations of arranging for a more reliable supply of needed energy nationwide and its equitable distribution among segments of society will have to be incorporated in sustainable energy development plans. Plans for all other sectors should reflect concerns for environmental protection, poverty alleviation and energy conservation. These should, however, be indicative plans with scope for market-driven decision in all investments.

B. Strategic environmental management

43. This is a policy tool to manage environmental quality. This should set in motion a process to turn the long-term vision of sustainable development into a set of actions involving different sectors and segments of the society. Each problem in each area would be analysed against a background of overall economic, ecological and social considerations. The strategic management approach would

seek partners and supporters from all segments of society by information dissemination for public awareness of the goals of the strategic planning.

C. Governance, institutions and capacity-building

44. In sustainable energy development, it will be difficult to achieve any success unless there is delineation of powers and devolution of resources to subnational and local levels. Several of the actions discussed are relevant at the local level and increased opportunities have to be created to get them examined, approved, implemented, monitored and managed at the same level.

45. Existing institutions need to be revamped or new institutions set up to regulate and develop the energy sector with specific concerns for sustainable energy development. Institutional development efforts should include the development of the capacity of the human resources in these institutions. The regulatory staff have to be trained in the skills of welfare economics, social cost-benefit analysis and tariff fixation.

46. The efforts needed for capacity-building for sustainable energy development are considerable and cannot be managed by a single country. Some of the centres could be identified as regional centres for training. Needless to say, levels of achievement and experience in different countries may be the criteria for designating the centres of excellence in different areas for action.

D. Legislative and fiscal arrangements

47. The legal structures of most countries for governance of the energy sector are designed to protect and regulate the public sector monopolies. These have to be amended or replaced by legislation to allow private sector participation and to promote competition, which is the key to increased efficiency. Similarly, taxes and subsidies should be reviewed, where appropriate, to promote renewable and environmentally sound technologies.

E. Technology networking and transfer

48. In some countries, a large pool of manpower working in the energy sector with adequate technical or managerial backgrounds already exists. These persons could be retained to become trainers for sustainable energy development training to be given to others. As the skills available in some countries may be useful to other countries, technology networking and transfer could play an important role. Recent technological innovations in information technology make it possible for network partners to interact at extremely low cost. Information sharing and discussions could be done over the Internet. The transfer of technology in the renewable energy and clean fossil fuel technologies through such networks should be encouraged by international and regional cooperation.

49. In order to achieve the objective "Transfer of technology in the field of renewable sources of energy", there is a need to strengthen the existing mechanisms in the United Nations, including in particular the Asian and Pacific Centre for Transfer of Technology. Such an arrangement should have the following objectives:

(i) Organizing a data bank on renewable energy application technologies;

(ii) Training of experts;

(iii) Transfer of technology (with the target of expanding renewable energy applications and cost reduction);

(iv) Facilitating free exchange of international information on renewable energy technology.

50. The required funds for the proposed arrangement should be provided through the funds available to the United Nations.

F. Environmental and energy education, information, public awareness and training towards sustainable development

51. Most of the problems of the sustainable energy development sector arise from a lack of public awareness of the consequences of environmental degradation and the associated overall long-term social costs and short-term health impacts. If the regional action programme for 2001-2005 is to have the full support of all sections of the society, these should all be educated. Schoolchildren, teachers, government officials, industrial managers, housewives and the general public have to become aware of the dimensions of the pollution problem in their country and locality. Environmental and energy-related subjects should be incorporated in the school curriculum for primary and secondary levels, and environmental and energy information and communication should be widely disseminated through the mass media. Frequent discussions and seminars have to be organized for the different stakeholders to discuss the issues involved in sustainable energy development as applicable to them. This could be facilitated by preparing and issuing papers, information brochures and technology pamphlets relevant to different areas of action. Such literature could be produced at a central place and made available to all country institutions. In recent times, television has penetrated even the remote villages. This could be used as a medium for dissemination of information on sustainable energy development.

G. Poverty alleviation

52. The overarching concern, which should permeate the examination of each issue under sustainable energy development, the selection of each project and the formulation of each policy in this area, is poverty alleviation. At every step, as we move towards sustainable energy development, its linkage with poverty alleviation measures should be established. Projects which could make a positive contribution towards poverty alleviation should be given priority and projects should be selected which ensure efficient energy consumption with the least cost and with minimum environmental degradation. Strategies will have to be devised whereby the production and distribution of energy become a key instrument for poverty alleviation.

H. Regional cooperation and energy trade

53. In order to enhance the planning capacity of each country, it is essential to take advantage of the expertise and experience gained in other countries of the region. Increased intercountry participation and exchange of expertise and training programmes organized by institutions either individually or jointly should be facilitated including through, inter alia, modalities of technical cooperation among developing countries, a tripartite arrangement involving the active participation of the developed countries and international donor institutions.

54. Country plans may seek out possibilities for building up partnership for the sharing and/or trade of energy resources and transfer of technology. Such activities could be actively facilitated by subregional organizations in partnership with international financing institutions.

IV. CONCLUSIONS

55. The urgent need for positive action towards sustainable energy has been recognized. The areas of action and tools for implementation have been identified. Many of them are cost-effective today, but some may need more research and development efforts. The time has come to set in motion, after careful consideration of alternatives, national plans of action for sustainable energy development which provide for competitive growth of energy supply industries to serve all sections of the community, particularly the impoverished sector, with the help of regional and international organizations. The objective of sustainable energy development is achievable and we can start today to move towards it.

Annex II

BALI DECLARATION ON ASIA-PACIFIC PERSPECTIVES ON ENERGY AND SUSTAINABLE DEVELOPMENT

SUMMARY

This document contains the Bali Declaration on Asia-Pacific Perspectives on Energy and Sustainable Development, adopted by the Meeting. The document contains eight priority areas of particular concern to the Asian and Pacific region: accessibility of energy, renewable energy, rural energy, energy efficiency, mobilization of financial resources, technology transfer, market reform and energy pricing, and international and regional cooperation and assistance. The Bali Declaration defines the regional sustainable energy development goal and calls for concerted action, policy measures and regional and international cooperation towards its achievement. The Declaration will serve as the regional input to the ninth session of the Commission on Sustainable Development, scheduled to be held in New York in April 2001.

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We, the Ministers and the heads of delegations of members and associate members of the Economic and Social Commission for Asia and the Pacific, convening at the High-level Regional Meeting on Energy for Sustainable Development, in Bali, Indonesia, on 23 and 24 November 2000,

Noting Economic and Social Council resolution 1999/60 of 30 July 1999 on preparations for the ninth session of the Commission on Sustainable Development, on energy issues, in which the Council called upon governments to actively participate and contribute to the preparatory process, and that the Ad Hoc Open-ended Intergovernmental Group of Experts on Energy and Sustainable Development, held in New York in March 2000, recognized the need for the active exchange of information on energy and sustainable development leading to the ninth session of the Commission;

Noting further that the Economic and Social Commission for Asia and the Pacific, at its fifty-sixth session, held in June 2000, attached great importance to the ninth session of the Commission on Sustainable Development, which would review and assess the issues in the implementation of energy for sustainable development in the context of Agenda 21, and recommended that the ESCAP region should provide valuable input to the discussion at the ninth session of the Commission;

Recalling the regional action programme adopted by the Ministers attending the Ministerial Conference on Environment and Development in Asia and the Pacific, 2000, held in Kitakyushu, Japan, on 4 and 5 September 2000, which contains a programme area on sustainable energy development;

Noting finally that the Preparatory Meeting of Senior Officials on Sustainable Energy Development held in Bali, Indonesia on 21 and 22 November 2000 outlined specific activities to attain a sustainable energy development path;

Make the following declaration for submission to the Commission on Sustainable Development at its ninth session outlining the regional perspectives comprising the concerns, needs and priorities specific to the Asian and Pacific situation:

1. Energy is a crucial input to economic and social development. Sustainable energy development will also contribute to poverty alleviation. The Asian and Pacific region, particularly the developing countries, will require more energy supplies and services to meet the basic needs and to improve the quality of life of its people. However, high energy consumption patterns and high energy demand growth, together with the high levels of energy demanded by developed countries, would cause a deterioration of the environment if the current pattern of unsustainable production, inefficient distribution and use of energy continued worldwide. It is important to take cognizance of the need to minimize the environmental impacts of these current patterns.

2. The energy demand and supply situation in the Asian and Pacific region varies widely across the region. The vast majority of the people live in rural areas without access to commercial energy and depend heavily on traditional sources of energy. The region also has the largest number of megacities, where air pollution poses increasing health hazards and, at the same time, the poor do not have access to adequate modern energy services. In small island countries, air pollution and natural hazards are the main causes of the health risks. To enhance more equitable supply and servicing of energy to these people, it is extremely important to bring commercial energy supplies to the urban poor and rural areas.

3. Many countries, while trying to increase energy supplies, have made considerable efforts to minimize the environmental impacts, but more effort is needed to promote energy development and consumption in a sustainable manner. Many key issues need to be resolved and constraints will

have to be removed, taking into consideration the needs and priorities specific to the Asian and Pacific region, in particular those of developing countries.

4. We consider capacity-building and transfer of technology to be the most important cross-cutting issues that should be taken into account in addressing all key issues identified.

5. We therefore seek to undertake to enhance the capacity of concerned stakeholders in developing sustainable energy development strategies by which energy services can be expanded and improved with a minimum impact on environmental quality. We propose to take appropriate steps to strengthen the policies, planning and management of the strategic energy sector, including its integration with economic, social and environmental policies. We shall promote effective partnership of all stakeholders through, inter alia, the strengthening of public awareness and the creation of an enabling environment for investment.

6. In realizing our commitments, we identify the following priority areas that need attention at the national, regional and international level:

A. Accessibility of energy

(1) The vast majority of the poor are unable to pay for their essential energy needs. They depend heavily on traditional sources of energy such as biomass and use of inefficient methods. The energy needs of the poor in the urban and rural areas will have to be met through a mix of commercial and traditional energy resources depending on needs, local conditions and resource availability.

(2) We resolve to take accelerated action and initiatives to widen the access of energy services to our disadvantaged groups of population. We urge all agencies, communities and other stakeholders to participate actively in the implementation of programmes.

B. Renewable energy

Although there is enormous potential for modern renewable energy technology development in the Asian and Pacific region, its contribution to the overall energy supply remains low. It is recognized that renewable energy sources, particularly through the increased use of modern technologies, could play a key role in enhancing energy supplies, particularly in the rural areas of the Asian and Pacific region. To that effect, we will strive to initiate policies and strategies to focus on and facilitate the optimal commercial exploitation of renewable energy resources. For the promotion and diffusion of renewable energy technologies, we will also encourage in-country technology development, local manufacturing and transfer, as well as the facilitation of technology transfer between countries. We recognize the need for enhanced efforts to create an enabling environment for greater private sector participation and a strong public-private partnership.

C. Rural energy

(1) Most of the rural areas in the region lack adequate supplies of commercial energy for household, community and productive use in agriculture and industries. A majority of the rural population uses fuels such as fuel wood, crop residue and animal dung. In all the developing countries of the Asian and Pacific region, the use of traditional fuels for cooking and kerosene for lighting is the norm. The use of these resources with inefficient technologies causes indoor air pollution and has a negative impact on health, in particular on women and children. Although electricity is the preferred energy for lighting, a large section of the population in many developing countries does not have access to electricity owing to the lack of infrastructure in their area.

(2) We are convinced that the problem of rural energy can be solved by widening the commercial energy base and, in that respect, we shall adopt an appropriate policy and strategies to accelerate rural electrification and the exploitation of available renewable and other energy resources with the involvement of local communities.

D. Energy efficiency

(1) There is considerable scope for improving efficiency in the production, conversion, transmission, distribution and usage of energy in the developing countries of the region. All concerned need to strive to obtain the full benefit of energy efficiency and cost-cutting initiatives throughout the energy cycle. Wastage needs to be minimized in the industry, household, commercial, transport and agriculture sectors. To this end, we shall formulate and implement energy efficiency policies to change the production and consumption pattern and take coordinated action towards cost-effectiveness, economic efficiency and environmental sustainability.

(2) All opportunities for enhancing energy efficiency in industrial production, domestic use, in buildings and in transport have to be identified and pursued. Energy efficiency will be sought through energy efficiency audits, promoting and where appropriate mandating minimum required energy for all important industries suitably phased depending on individual country requirements. All electrical equipment, including all household appliances, could be subjected to energy labelling. Similarly, in the transport sector, in order to minimize urban air pollution, minimum required fuel rating and emission standards could be established. In all these efforts, the cooperation and active participation of machinery manufacturers and consumer associations should be sought. We shall undertake to enable all energy efficiency measures to be put in place through appropriate national-level policies, including the enactment of comprehensive legislation for this purpose.

(3) All means of increasing energy efficiency and reducing pollution will be explored, including switching to natural gas and other environmentally friendly fuels. All forms of new and renewable energy, such as biomass, solar, wind, hydro, geothermal and energy carriers, should be exploited, with due consideration being paid to availability of resources and local conditions. The potential of natural gas in the region to minimize environmental impact needs to be explored.

E. Mobilization of financial resources

(1) The flow of international assistance to the Asian and Pacific region is inadequate. There is a need for strong international public and private financial and technical assistance for the effective implementation of national policies and programmes aimed at sustainable energy development, particularly in developing countries.

(2) Financing is the most important issue in the promotion of increased utilization of energy. New and appropriate methods need to be explored for mobilizing financing through financial institutions and the private sector, including the provision of rural credit, credit for working capital and marketing activities, as well as for removing all the bottlenecks impeding the flow of funds.

(3) Private and public sector financing as part of innovative financing for sustainable energy plays a significant role to guarantee accessible and affordable energy services for all people, particularly those in developing countries. Considering the fact that most developing countries do not have institutional structures that are adequately prepared to deal with the scale of risks associated with major energy investments, there is a need to expand existing international mechanisms or develop new mechanism to identify risks and ensure they are managed on a transparent basis and with an effective and equitable partnership between investors and host countries.

(4) We urge developed countries to honour their commitments made at the United Nations Conference on Environment and Development, held in Rio de Janeiro, Brazil, in 1992, in terms of official development assistance and technology transfer. We support the early replenishment of concession funds in international financial institutions. We feel strongly that there is a need for new and additional financing mechanisms and devising financial incentives to encourage private sector investment to promote sustainable energy development. In that respect, we urge the developed countries to provide additional financial and other resources to developing countries, and at the same time, we support the use of innovative and special financing for the implementation of sustainable energy development plans.

F. Technology transfer

A major area of concern in the region is the inadequate technology transfer in the area of both advanced clean fossil fuel technologies and new and renewable energy technologies. In order to implement sustainable energy production and consumption policies, access to and the transfer of environmentally sound technologies and corresponding know-how are important. The requisite technology is available, mostly in the developed countries but also in some developing countries. We urge all concerned to facilitate and finance technology transfer on favourable terms in line with Agenda 21. In order to achieve the above-mentioned objective, there is a need to strengthen the existing mechanism and the United Nations involvement.

G. Market reform and energy pricing

(1) Where an appropriate market mechanism is established to attract investment, the public interest must be ensured by maintaining the prices at affordable and acceptable levels by safeguarding the protection of the environment.

(2) Most countries of the region have been undertaking various forms of restructuring and reform in the energy sector. These market-oriented mechanisms should be encouraged.

(3) The existing structure of subsidies in many countries distorts the market in favour of conventional energy and discourages the penetration of renewable energy and energy efficiency initiatives. We will aim to target subsidies carefully for the benefit of the poor and for the promotion of sustainable energy and to phase them out gradually over the long term.

H. International and regional cooperation and assistance

(1) While we fully recognize the importance of promoting sustainable energy development and will endeavour to make our best efforts in undertaking all possible measures towards its implementation, it is imperative that the international community provides the necessary assistance in our efforts by enhancing national capacity, mobilizing financial resources and facilitating technology transfer. We are confident that, with cooperation and assistance at all levels, we will be able to fulfil our commitments.

(2) In many parts of the region, a considerable potential exists for intraregional cooperation in joint trans-boundary energy sector, infrastructure development and energy trade. Establishment of new grid connections and the extension of the available one between countries of the ESCAP region, where appropriate, in order to promote electricity trade should be facilitated. To actualize this potential, it is essential that the developed countries and international donor institutions assist developing countries of the region in their efforts to enhance technical cooperation in the field of energy. For example, the diffusion of experiences of developing countries of the region in the field of renewable energy and energy efficiency should be encouraged through regional cooperation.

(3) We recognize the urgent need to improve the development and production activities of hydrocarbon fields through integrated cost reduction, more efficient arrangements and the application of appropriate technology. In this regard, we call on the concerned countries in the region and international organizations, as well as relevant stakeholders, to promote cooperation in this area.

(4) We urge all concerned United Nations funding bodies and programmes, regional commissions, specialized agencies, governmental and non-governmental organizations, international and regional institutions, civil society, funding agencies and donor countries, as well as the private sector, to assist and support our efforts to attain our sustainable energy development goals.

Adopted on 24 November 2000, in Bali, Indonesia

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Letter dated 29 January 2001 from the Permanent Representative of Indonesia to the United Nations addressed to the Secretary-General

Corrigendum

Annex, paragraph 26

The paragraph should read:

"26. The Minister of Energy and Mineral Resources, H.E. Mr. Purnomo Yusgiantoro, welcomed the guests and representatives to the High-level Regional Meeting. He noted that the Government of Indonesia attached the highest priority to the security of energy supply, which was essential for socio-economic growth and development as well as for protection against environmental degradation. He also noted that the Meeting was timely for instigating a new vision for international cooperation on energy and sustainable development to fulfil long-term energy needs. He also noted the high-level participation in the Business Forum organized jointly by the Governments of Indonesia and Australia, as well as in the NGO Symposium organized by ESCAP. He expressed the hope that those events had provided opportunities for stakeholders in the energy sector to interact. In concluding, he expressed confidence that the High-level Meeting would meet its objective."

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